STATE
NIVERSITY
JAN 13 1931
LIBRARY

F43
v. 84

FIRE ENGINEERING

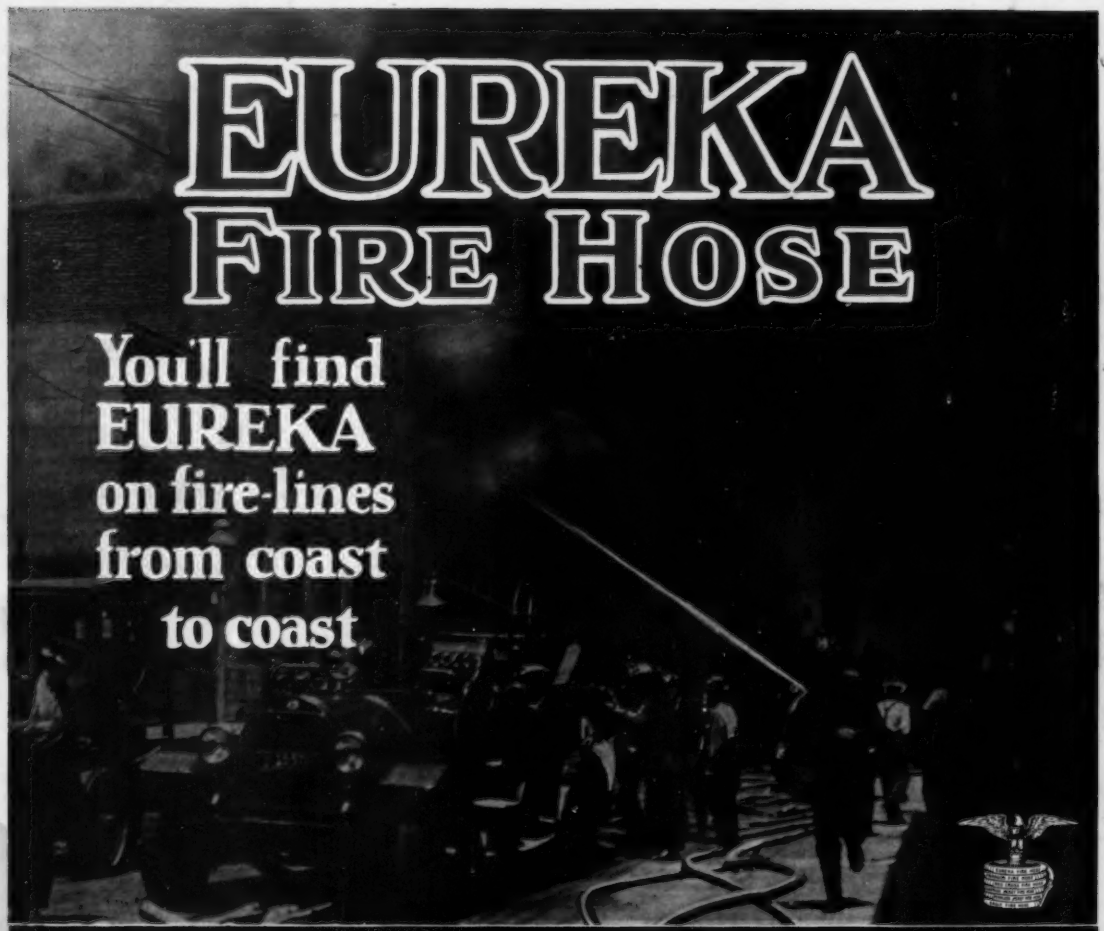
A consolidation of FIRE AND WATER ENGINEERING and THE FIRE ENGINEER

The Journal of the Fire Protection Profession

JANUARY 7, 1931

EUREKA
FIRE HOSE

You'll find EUREKA on fire-lines from coast to coast



Eureka Fire Hose Manufacturing Company
50 CHURCH STREET, NEW YORK CITY
ATLANTA BOSTON CHICAGO COLUMBUS DALLAS DENVER DES MOINES DETROIT
KANSAS CITY LOS ANGELES MINNEAPOLIS NEW YORK PHILADELPHIA SEATTLE SYRACUSE

TH
9111
F43
v.84

ESTABLISHED 1877 PUBLISHED BI-WEEKLY

Ease of steering...

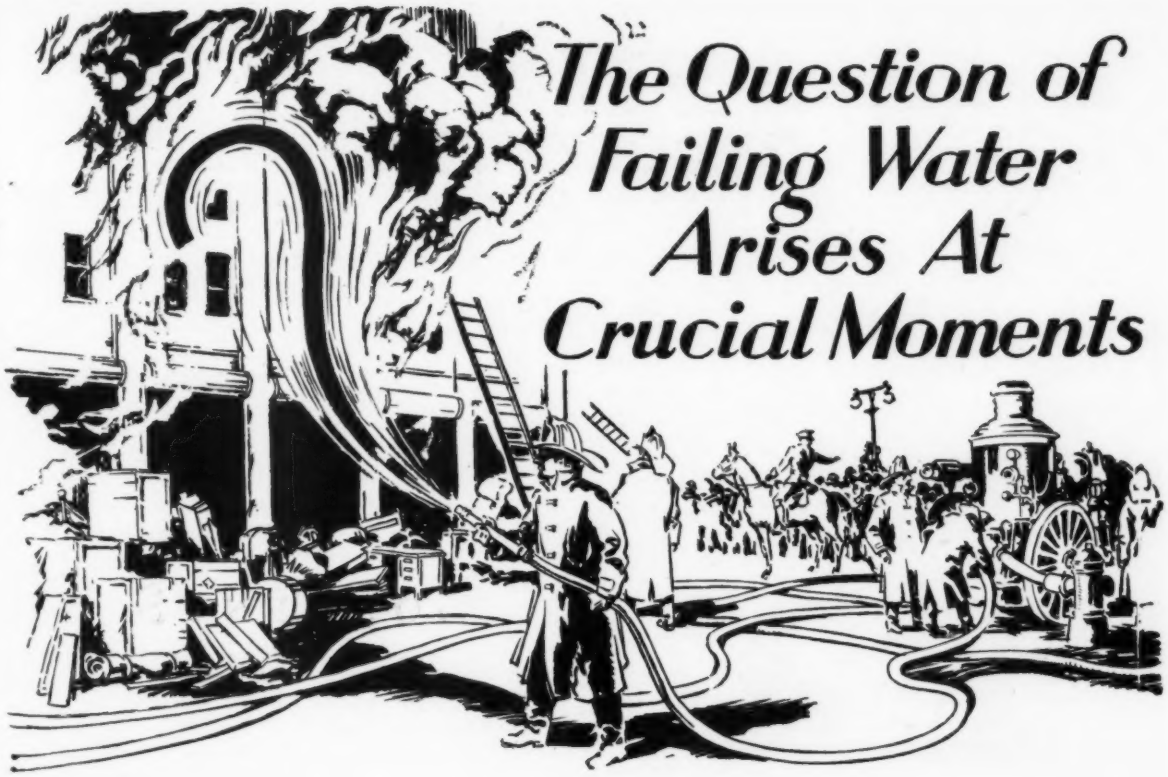
...perfected on the new MASTER SERIES APPARATUS

Ease of handling fire apparatus means a lot, with difficult turns to maneuver...and no time to be lost getting to a fire.

Master Series Apparatus handles like a pleasure car. The steering gear is semi-irreversible. With a high ratio, the steering apparatus is the easiest that modern fire apparatus engineering has produced. The turning radius is small...Left hand drive on all Master Series Apparatus means efficient driving, and allows quick action when your apparatus arrives at the fire.

Driving ease is only one of the forward steps achieved by American-LaFrance engineers on Master Series Apparatus. For complete information on the entire line... pumpers, aerials, city service trucks...write American-La France and Foamite Corporation, Dept. A-76, Elmira, N.Y. *Offices in all principal cities.*

LA FRANCE AND FOAMITE PROTECTION
AN ENGINEERING SERVICE
AGAINST FIRE



The Question of Failing Water Arises At Crucial Moments

But full continuous delivery of water is never a question with the Darling hydrants.

No ice jams—complete automatic drainage.

No sediment jams—clear, unobstructed base and valve opening.

No parts rusted—vulnerable parts made of bronze.

Even Flow—extra large barrel.

Easy opening and closing—straight valve stem—all bronze operating nut, no torsional strain.

Darling Valve & Manufacturing Company
Williamsport, Pa.

New York Los Angeles
Oklahoma City Houston

DARLING
FIRE HYDRANTS

650

The Journal of the Fire Protection Profession Since 1877

MEMBER
Audit Bureau of Circulations
Associated Business Papers

FIRE ENGINEERING

A Consolidation of FIRE AND WATER ENGINEERING and THE FIRE ENGINEER

Published Every-Other Wednesday

SUBSCRIPTION PRICE
U. S. and Canada $3 a year; Foreign $4; Single copies 25c

Issued by CASE-SHEPPERD-MANN PUBLISHING CORPORATION
Also publishers of "Water Works Engineering," "Municipal Sanitation," Technical Books, etc.
24 West 40th Street, New York City
Western Office, 30 No. Michigan Ave., Chicago

KARL M. MANN, President and Advertising Director
FRED SHEPPERD, Managing Editor
I. HERBERT CASE, Vice-Pres. and General Manager
H. S. ESSEX, Advertising Manager · ROBERT H. LOCKWOOD, Editor; N. N. WOLPERT, Asst. Editor

EDITORIAL ADVISORY BOARD

JOHN KENLON, Chief, New York Fire Dept. Founder of New York Fire College
JOHN C. MORAN, Chief, Fire Department Hartford, Conn.
GEO. J. KUSS, Former Deputy Chief N. Y. F. D.; Lecturer on Fire Fighting, Delehanty Institute, N. Y.
A. A. BELL, Chief of Fire Brigades and Engineer "America Fore" Group of Fire Insurance Cos.

Exit the Bogey

WE are convinced, after careful observation, that most of the troubles of the past year have been purely psychological — traceable in a large measure to nothing more than the fact that we have 100,000,000 superstitious people in this country who shook in their boots because the numerals in 1930 totalled 13.

¶ While the same phenomenon occured in 1903, 1912 and 1921, our mathematical wizards tell us it won't happen again until the year 2029, which means that we can now go about our business safely for the next 99 years without being disturbed by the "13" jinx.

¶ After all, "the worst sorrows in life are not in its losses and misfortunes, but in its fears." The trouble with most of us is we worry about things that never happen.

¶ Lets think and practice optimism during the new year — and we're bound to prosper.

The Publishers

CONTENTS

VOL. LXXXIV No. 1

January 7, 1931

Reducing Damage at Fire by Protecting Exposed Materials, By Chief Daniel H. Shire 9
The Advantages Which Salvage Brings to a Fire Department.

The Law as to Compensation of Firemen for Injuries, By Leo T. Parker 11
Various Higher Court Decisions on This Important Subject—Legal Phases of Problem.

The Round Table 13
How Do You Regulate Dry Cleaning in Your City? What Special Equipment Is Required or What Special Regulations Must Be Followed?

With the Editor 15
Comments on Current Events and Live Topics by Our Editorial Staff.

Questions and Answers 17
Replies to Questions on All Manner of Subjects on Fire Fighting and Fire Prevention.

Recent Important Fires Specially Reported (Illustrated) 21
Four Alarm Industrial Fire in Pittsburgh, Pa.—Burnings of Two Weeks.

Fire Department Improvements 29
Record of Business Activities in the Fire Protection Field.

False Alarms 34
Humorous Side of the Fire Protection Profession.

Contents of this issue copyrighted, 1931, by the Case-Shepperd-Mann Publishing Corp., 24 West 40th St., New York City.
Entered as second class matter April 15, 1919, at the Post Office at New York, N. Y., under th Act of March 3, 1879.

AHRENS-FOX

now offer the Model "V"

The Model "V" 500 GALLON Booster Equipped Triple Combination

Just the apparatus that is needed in smaller towns!

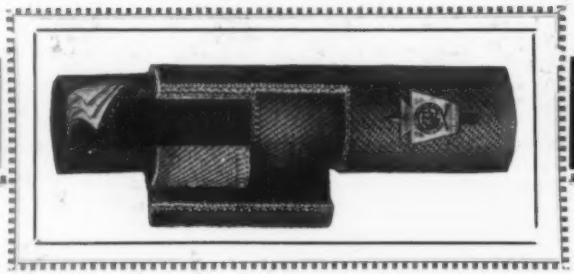
Here is the new 500 gallon Rotarystile model "V" Pumper that is designed to meet the requirements of the small town. It embodies many new features such as: 4 wheel Hydraulic Brakes, "Ross" cam and lever Steering, Pneumatic Cord Tires, Steel Disc Wheels, Left Hand Drive and many others. Priced so that smaller communities need not wait any longer to buy a pumper.

For a while at least orders will exceed production—so if you contemplate purchase even within the year by all means get details by writing TODAY!

THE AHRENS-FOX FIRE ENGINE COMPANY

CINCINNATI, OHIO

We shall appreciate your mentioning FIRE ENGINEERING *when writing advertisers.*



QUALITY

is apparent

long after the purchase price is forgotten

THIS is particularly true when you purchase FABRIC FIRE HOSE. The original cost is not any more than GOOD HOSE should cost. Cheaply constructed hose is costly at any price. FABRIC FIRE HOSE will outlive ordinary hose and will give you better service during its long life for it will not kink or buckle, nor does it absorb water and become heavy and hard to handle.

The Wax and Para Gum treatment of each individual thread insures uniform toughness and absolute resistance to weather and water. Fabric Hose is mildew-proof, rot-proof, pliable, strong and durable.

FABRIC FIRE HOSE COMPANY

9-15 PARK PLACE, NEW YORK, N. Y.—124-126 LAKE STREET, CHICAGO, ILL.

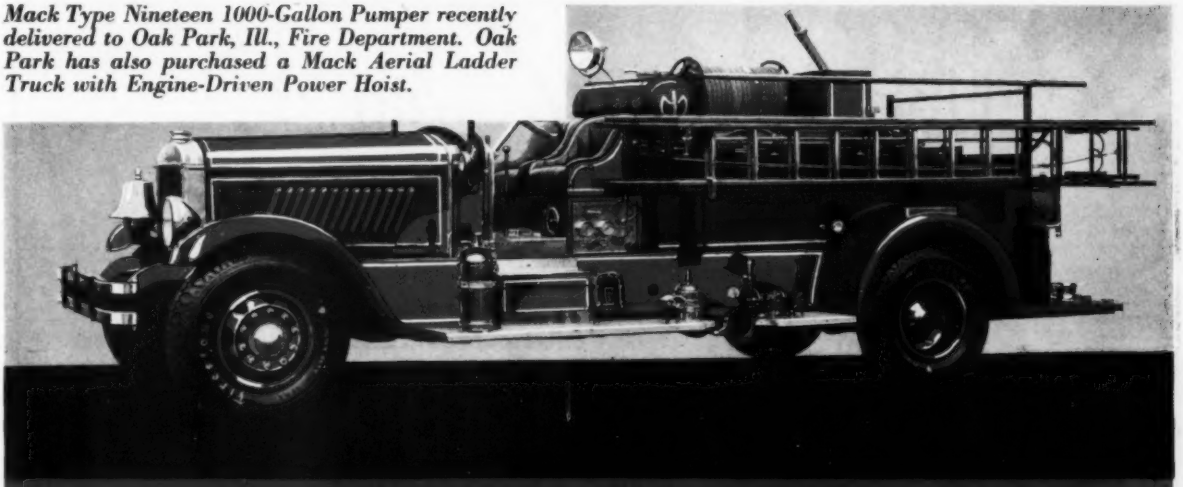
Atlanta	Columbus	Binghamton	Minneapolis	San Francisco	Newark
Boston	Dallas	Baltimore	Portland (Ore.)	Los Angeles	Pittsburgh

FABRIC

WAX AND PARA GUM TREATED COTTON

FIRE HOSE

Mack Type Nineteen 1000-Gallon Pumper recently delivered to Oak Park, Ill., Fire Department. Oak Park has also purchased a Mack Aerial Ladder Truck with Engine-Driven Power Hoist.



UNEXCELLED RESOURCES MAKE THE NAME

Mack

WHAT IT STANDS FOR TODAY IN THE FIRE-ENGINE FIELD

Scene in the big plant at Allentown, Pa., where Mack Fire Apparatus are built.

Building fire apparatus is a definite part of Mack business.

A tremendous investment in plant equipment, and engineering and service facilities is back of Mack Fire Apparatus success.

The resources of the Mack organization explain why Mack Fire Apparatus is further advanced in design—why it embodies so many exclusive quality features—why it offers more new improvements than other makes—and why more than 100 Direct Mack Factory Branches are equipped to give lifelong service to Mack Fire Apparatus in any emergency.

Mack has the resources and facilities to build and maintain the finest in fire apparatus — and DOES.

MACK TRUCKS, INC.
FIRE ENGINE DIVISION
25 Broadway New York, N. Y.

More than 100 Direct Mack Factory Branches are equipped to service Mack Fire Apparatus in any emergency.

TRUCKS BUSES FIRE APPARATUS LOCOMOTIVES

A PUBLIC ALARM with a FINE SERVICE RECORD

Outdoor Diaphone installations provide the most satisfactory service. Compressor is located inside building. Note location of Diaphone horn above the roof.

Fires demand emergency action, particularly in those cities and towns depending upon a volunteer fire department for protection. The quickest and most accurate method of summoning the volunteer firemen is by means of a public alarm. Such an alarm should have:

(1) Extensive carrying power.

(2) A distinctive and alarming tone.

(3) Good coding qualities.

(4) Reserve capacity.

For years the steam whistle has made a dependable public alarm for cities and towns; but during the past several years the electrification of factories and water works, which formerly supplied 24-hour a day all year round steam for this purpose, has made it necessary for fire chiefs and other city officials to look elsewhere for a satisfactory public alarm.

The most satisfactory modern public alarm available to take the place of the steam whistle is the Gamewell DIAPHONE. Its carrying power is tremendous; its tone is distinctive and alarming; it will code rapidly; and it has a reserve capacity that acts as a safeguard against shut-downs in the electric power supply.

Furthermore, the DIAPHONE is the basis of a modern street fire alarm box system. Once it is installed, street fire alarm boxes of the latest type can be added later as the city grows, without discarding any of the original equipment.

Write for a copy of leaflet No. 2022.

THE GAMEWELL COMPANY

NEWTON, MASS.

"A BOX A BLOCK"

FIRE ENGINEERING

(A Consolidation of Fire and Water Engineering and The Fire Engineer)

The Journal of the Fire Protection Profession

VOLUME LXXXIV JANUARY 7, 1931 NUMBER 1

Reducing Damage at Fires by Protecting Exposed Materials

The Advantages Which Salvage Brings to a Fire Department—Worth Any Amount of Trouble and Expense in the Lessening of Loss

By CHIEF DANIEL H. SHIRE, Fire Department, Mason City, Ia.

The growing use of Salvage Operations by Fire Departments at fires and the great saving in water damage effected thereby makes the subject a very important one for Chiefs. The ideas expressed in the following paper will be found especially interesting and instructive:

NOT so many years ago salvage operations and fire extinguishment were considered foreign to each other by firemen, as though no relationship existed, but due to progress being made in the study of fire department work, the firemen soon realized that just plain fire extinguishment did not fill the bill. For there was a large amount of damage charged up to each fire, that was not done by the fire and could be eliminated to some extent by avoiding unnecessary destruction by using common sense methods at fires. So today we find wideawake fire chiefs and city officials studying, and the department performing work at fires, which are bringing large returns in small fire losses and satisfaction in better operation.

The size of the department, or whether it is a volunteer or a paid one, does not enter into the question at all. All that is necessary, is that a fire department is willing to give service and to show results.

"In most cases it is possible to relieve some men for salvage work and the resulting cut in the fire loss from such operations will more than repay you for the cost of the equipment and the effort spent."

Salvage Work a Major Operation

Correct salvage work at fires has become the major operation in every fire department that is keeping abreast of the times. The fireman of today realizes that in order for him to be efficient—to be a fireman in reality and give value for value received, he must at least have a working knowledge of all fire department operations.

So today we find as regular equipment on fire apparatus, salvage covers both for inside and roof work, squeegees, brooms, mops, shovels, chamois, tar paper, hammers and nails, sprinkler heads, wooden plugs for driving into broken water pipes, in addition to several sizes of fire hose, where only a few short years ago only one size of fire hose was carried.

You will ask, "Why all this change?" And my answer is that Chiefs are now giving more thought and attention to correct fire department operations than they did years ago, for they have found it is a necessity and see the merit of it. The old days of just extinguishing the fire are gone. You must do more than just throw water into a building and its contents without any consideration of the damage you are doing. For a fire department's first duty is to save life and property, and just extinguishment will not get you by. It is obligatory upon you to save life and property wherever it is possible and this now calls for the extinguishment of each fire with as little damage as possible.

More Attention Being Given to Salvage

In the old days and still today in some fire departments that have not seen the light of present day operations, the destruction wrought in extinguishment was and is appalling, and of so much concern that today we find fire department after fire department undergoing a reorganization and change so that steps will be taken to salvage property at fire by the department. This means that fire officers and firemen have to realize and understand their work, and calls for systematic study and training, so that the organized body can and will work so as to materially reduce this loss at each fire.

So today we find the fireman learning to cover up stock and furniture in both the business and residential districts of a city where property is threatened by fire and water. Just for a minute follow me to a residence fire where a wide-awake fire department exists. Six men answer the alarm and arrive at the fire and find a roof involved, with a fire also in the attic.

All members of the department but two men go to work on the fire to extinguish it, but in place of using two and one-half inch hose they use one-inch and one and one-half inch hose and in place of using nozzles that throw two-hundred to two-hundred and fifty gallons of water a minute, nozzles are used that throw from forty to seventy gallons of water a minute. We will forget for the time the firemen fighting the fire and let us follow the other two men who are leaving the apparatus with a pile of folded canvas on their shoulders.

Into the house they go and upstairs into a bed room directly under where the main body of the fire is. The bed is shoved in the center of the room and the rug is pulled from under it, all that is on top of the dresser is swept into the top drawer and the dresser is placed flat on top of the bed, the drawers up, pictures are taken from the walls, two chairs are also piled on top of the bed, all clothing is taken from the closets and piled on the bed, the rug is thrown over the whole pile and covers spread, care being taken to see that they lap well so that no water can enter and the ends on the floor are rolled until what water does fall on the pile cannot get away.

Two more bedrooms are covered up in the same manner almost before you realize what has taken place. In the hall they have made a "catch-all" of one of the canvas covers to take care of any water that may come that way.

You go outside and find that the fire is almost out and you see the lady of the house crying on the next door neighbor's porch. And why not? This is her little home and it has been paid for a little at a time and the furniture can never be replaced, for sentimental reasons! She sees only a charred and broken roof and hose lines and smoke. You know her feelings. The lines of hose are being picked up and she sees the firemen dumping water out of the second story windows and now firemen are going in with mops, brooms and squeegees and some are putting tar paper on the holes in the roof. She knows her home and all the things so dear to her and her family are ruined. She has no insurance on the contents of the house and very little on the house itself.

Woman of House Has Pleasant Surprise

Imagine her feelings and her surprise when she goes into the house and finds all her clothing, furniture, etc., intact, no water on any of it, everything cleaned up, everything set back in its place! It is a cheerful surprise and I know that night it was gratifying to the firemen to know that the roof was protected, for Oh! how it did rain! But those men in the station knew that there would be no damage from the elements to be added to that fire when it was adjusted.

The more you "Cover Up" at fires the more you learn how to improve on your salvage work.

Salvage Work Worth Trouble and Expense

Of course, there are fires where it is utterly impossible to conduct salvage operations and in such cases salvage work has to be forgotten. By this I mean those fires which have attained such headway that the fire department must devote all of its efforts to fire extinguishment. But in most cases it is possible to relieve some men for salvage work and I can assure you that the resulting cut in the fire loss from such operations will more than repay you for the cost of the equipment and the effort spent.

Briefly the principle upon which the fire department salvage operations are based are as follows:

The reduction of water damage by using small lines and nozzles where it is safe to do so.

The further reduction of water damage by training firemen in proper use of water at fires.

Proper ventilation at fires, carried out with a view to making repairs easy and completed with as little damage to the building or contents as possible, and at the same time, secure the results desired.

Prompt action on covering the contents of buildings at fires and the locating of catch-alls, tubs and chutes at threatened points where water is apt to collect and seep through to the floor below.

Complete overhauling of stock after a fire, including the removal of water and debris from the floors and stairs of the building and the protection of the building and contents from snow and rain and freezing by the use of covers or tar paper where this is necessary.

All of these things can be taught to the men of a fire department by drill, chalk talks, and demonstrations at a very little expense.

One of the great advantages of our system of salvage work is that it can be built up step by step. It is not necessary to spend hundreds of dollars for the equipment at the start of the service. Each new item added, whether it be a drill or a piece of equipment, should be made to prove its value by a reduction in the fire loss by its use.

Any Chief can foretell with absolute certainty the value of any improvement in the salvage plan by watching its use in other cities where it is being done.

Get the habit and do salvage work and I believe that your city, if it adopts it as part of your fire department operations, will find it well worth while and will never thereafter be without this important factor in fire loss reduction.

(Excerpts from a paper read before the annual convention of the Salvage Corps Officers Association.)

Lauber Named Fire Marshal

Calvin G. Lauber, Office Engineer of the National Board of Fire Underwriters, New York City, has been named Fire Marshal of Washington, D. C., following a competitive Civil Service Commission examination held to fill the vacancy created by the resignation of Leonard B. Seib, August 1, 1929. He will take office on January 2 at a salary of $5,000 a year.

Calvin G. Lauber

The Fire Department has been under Civil Service rules since 1919 and was consequently not affected by the recent order of the Commissioners that department heads should consult the Civil Service eligibility list before hiring employees. There have been no appointments since the District employees were placed under Civil Service.

Charles G. Ashstotter, Deputy Fire Marshal, has been acting Fire Marshal since the resignation of Mr. Seib. Mr. Lauber was appointed by Chief George S. Watson of Washington, D. C.

Mr. Lauber has had considerable experience in the field making fire department surveys and recommendations for improving the fire defenses of a municipality. He has a wide acquaintance among fire department officials.

Clinton, Pa., Not to Charge for Fires—In September the council of Clinton, Pa., voted to charge $25 for each out-of-town fire. There has been so much opposition to this ruling that at another meeting the measure has been nullified.

The Law as to Compensation of Firemen for Injuries

Various Higher Court Decisions on This Important Subject—Interesting Legal Phases of the Problem

By LEO T. PARKER, Attorney-at-Law

THE duties of municipal firemen are hazardous—that is well known and universally recognized by the Courts. There are, however, many interesting and unsolved legal phases involving the right of firemen to recover damages, compensation, pensions and insurance for injuries sustained in performance of their duties.

As a general rule a municipality is not liable in a damage suit for injuries to a fireman, unless the injury occurred while the fireman was attending to his regular duties, or while he was on active duty.

For instance, in Urban vs. Town of Pendleton, 236 N. Y. S. 383, it was disclosed that a member of a volunteer fire company was killed as a result of a collision which occurred while he was riding with the chief to the fire house for the purpose of obtaining necessary equipment to recover the bodies of two drowned persons. A dependent of the deceased fireman filed suit against the city to recover $3,000 damages.

The city defended the suit by contending that the dependent had not proved conclusively that the fireman was an active volunteer at the time of his death, and that he died from injuries incurred while in the performance of his duties.

It is interesting to observe that the Court held the dependent of the deceased fireman not entitled to a recovery, and said:

"The question of saving life was not even involved, for the reason that the time consumed by the Chief going from his home to the scene of the accident in his own car and again returning with the fire truck, would consume so much time that there could be no possibility of life in the persons, for the recovery of whose bodies this trip was made. The act of the Chief and of the decedent was that of extreme kindness and thoughtfulness, but this in itself is not sufficient to allow recovery against the town."

Legal Phases of Firemen's Compensation Treated in This Article

Right of Fireman to Compensation for Injury

When Employee Assumes Risk of Employment

State Law Does Not Direct Passage of Pension Ordinance

Interpretation of Insurance Contracts

Right to Recover Damages

Injuries Within Scope of Employment

Court Construes State Law

Fire Department Employees Entitled to Compensation Under Employers' Liability Act

Physician's Testimony of Injury Not Accepted

When Employee Assumes Risk of Employment

It is well settled that ordinarily a fire department employee is not entitled to recover damages, under the common law, for an injury sustained without negligence on the part of the municipal officials. This is particularly true if the employee realized the hazards associated with the employment. However, if the employee is not capable of realizing the danger associated with the employment, the situation is quite different. An illustration of this phase of the law, as well as the care required of fire department officials when directing employees to perform work, is supplied by the recent case of Robison vs. City of Wichita Falls, 27 S. W. (2d) 281.

In this case it was disclosed that a municipal employee sued a city to recover damages in the sum of $25,000, alleging that while he was an employee, the city officials furnished him with disinfecting powder to be used in the performance of his duties, and that the powder was extremely irritating to his eyes resulting in finally destroying his eyesight. The counsel for the city argued that the employee was not entitled to damages first, because he assumed the ordinary risks of the employment, and second, that he was contributory negligent in permitting the powder to get into his eyes. However, since it was proved that the employee was mentally deficient, although the lower Court held the city not liable, the higher Court reversed this verdict, saying:

"When the relation of master and servant is shown to exist between a municipality and such an employee, the rule that the city is exempt from liability for its negligence or torts does not apply, but it is liable in such cases as any other master. . . . A person who is mentally deficient is not guilty of contributory negligence if his failure to see ordinary care for his own safety is due to want of capacity to appreciate and avoid danger. The care required by a person laboring under any mental disability is that care which may reasonably be expected of one having the same capacity to appreciate and avoid injury; and a person who is, by reason of mental incapacity, wholly unable to apprehend apparent danger and to avoid exposure to it, cannot be guilty of contributory negligence."

Obviously, the law upheld in this litigation does not apply to members of fire departments who are employed in municipalities or states which have enacted laws that entitle firemen or their dependents to compensation without regard to when or how an injury is sustained. It does, however, apply, nothwithstanding a compensation law, if a fireman is injured while performing work not strictly his regular duties under the municipal fire department officials, but with proper authority while rendering any service for the city.

State Law Does Not Direct Passage of Pension Ordinance

The law is well established that if a state law clearly directs passage of a city ordinance, the council is bound to enact an ordinance of this character. However, a state law of this nature will not be construed as being directory unless its terms are clear and unmistaken.

For example, in Delaney vs. Board of Com'rs of City of Hoboken, 151 Atl. 112, a state law provides:

"Authority is hereby conferred upon the governing body of any municipality by ordinance to provide for the payment of an annual pension upon the death of any member of the fire department of such municipality the death of whom has been or shall be occasioned from injuries received in the performance of duty as a member of the fire department; such pension shall not exceed annually the annual salary of such deceased member of the fire department at the time of such member's death. . . . "

A member of a municipal Fire Department was killed while performing his regular duties. The municipality had not passed an ordinance to conform with the above state law and the dependents of the fireman filed suit asking the Court to compel the city to pass an ordinance allowing them an annual pension equal to the salary of the fireman when he was killed in the performance of his duties. The Court refused to do so, saying:

"The language of the act which declares that 'authority is hereby conferred upon the governing body of any municipality, by ordinance to provide for the payment of an annual pension,' etc., seems to us to leave the adoption of such an ordinance to the discretion of the municipal body; in other words, that if that body considers it for the interest of the community to pass such an ordinance, it may do so, but, if it thinks it unwise to impose the total amount of the pensions therein authorized upon the taxpayers of the municipality, it may refuse to exercise the authority conferred upon it by the statute."

Interpretation of Insurance Contracts

As a general rule a Court will strictly construe an insurance contract or policy in accordance with its legal meaning. Because of this established rule of the law it is advisable that

all holders of insurance policies carefully read and understand the meaning of the various clauses. The protection afforded may be found to vary considerably from the usual understanding or explanation supplied by the insurance agents.

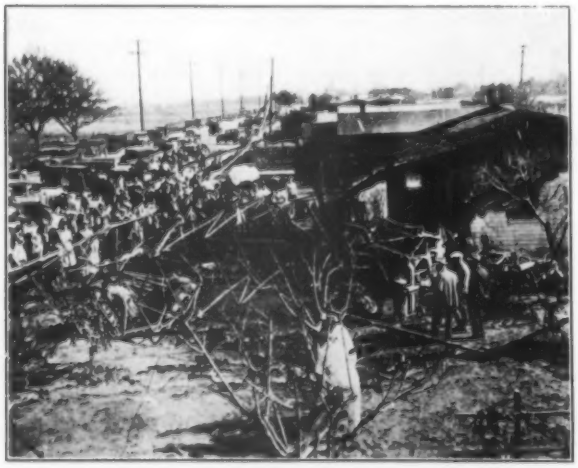
For illustration, in Firemen's Insurance Association vs. Kemper, 28 S. W. (2d) 1111, it was disclosed that a fireman held an insurance policy which provided that the beneficiary would be paid $2,000 in case the member "through external, violent and accidental means" should receive "bodily injuries which independently of all other causes," result in death, within ninety days from and after the date of such accident. If the fireman should not die as a result of an accident then the beneficiary was to be paid only $200 at his death. The policy, also, contained a clause providing that such injuries should be "immediate" and result in total disability.

The insured was injured one night through the inhalation of smoke and fumes while fighting a fire in a drug store in the capacity of captain of the fire department. The firemen were extinguishing the fire with chemicals in a very small room and the captain had no respirator to put over his nose and mouth to prevent inhaling the fumes. While the fire was in progress acids and different kinds of medicines were exploding. The captain complained of his chest every day until he went to a hospital. From the time of the fire he was hoarse, "whisper-like." He grew worse and died in the hospital. He had up to the time been a healthy, vigorous man who was off duty only once in twelve years, and that was when his father died.

The insurance company refused to pay the amount of the insurance policy and contended that the injuries were not "immediate."

The lower Court held the insurance company liable for $2,000 but, in view of the above mentioned clause in the policy, the higher Court reversed the verdict, stating the following important law:

"It shows, if appellant's construction be given, that these accident insurance companies by their agents are going around over the country bilking the citizens out of their money under pretext that they are insuring them against injuries resulting from accidents. The cruelty of the imposition is intensified by the requirement coming from a 'fraternal' organization and the helplessness of those seeking the insurance. However, what is 'written is written' and this Court is bound by it. . . . In other words, he must be killed on the spot or so badly injured that he would have to be carried from the scene of his injuries on a litter and placed in an ambulance to be taken therefrom to his deathbed. . . . The facts show that under the ruling of the Supreme Court the injuries to deceased did not cause immediate, total disability which continued to his death. He helped clean up the rubbish in the prescription room after the fire was extinguished, then rode back to the fire station on a truck and performed his labors most of the time until sent to the hospital. . . . The disability was not immediate or total. . . . The judgment will be reversed, and judgment here rendered in favor of appellee for $200, and that she pay all costs of this appeal."



All That Is Left of a Western Air Express

As the pilot of a Western Air Express was bringing in his plane from Salt Lake City to the airport in Alhambra, Cal., the plane was banked to make a landing and, in the dark, the tip of a wing came in contact with an overhead high tension wire. The plane burst into flames. The pilot and his two passengers jumped to the ground and escaped serious injury. The plane crashed into a dwelling. Fire damaged some of the mail pouches before they could be removed from the burning airplane.

Right to Recover Damages

Various states and cities have enacted laws which entitle municipal firemen to payment of compensation for injuries sustained while on duty. Generally speaking, these laws provide that a fireman who is injured while attending to his regular duties is entitled to receive a stipulated payment, irrespective whether he was injured as a result of his own negligence. If the fireman is killed, his dependents are allowed a specified amount as compensation under the same rules. In addition to this payment of compensation the fireman or his dependents may recover damages, under the common law, from any person or firm whose negligence caused the injury providing negligence of the fireman did not contribute to the occurrence of the accident which caused the injury. Therefore, it is important to know that the legal meaning of the term "contributory negligence" refers specifically to that degree of negligence of an injured person which actually resulted in the injury.

Frequently suits for damages for injuries to municipal firemen are decided upon the rule: Where two persons are negligent, the one whose negligence is greater is responsible. This rule of the law is applicable in all cases involving injuries. Also, a jury is compelled to use this rule very often in deciding a controversy between a railway company and an injured fire truck driver, particularly if contradictory testimony is introduced.

For instance, in Chicago, R. I. & P. Ry. Co. vs. McKamy, 25 S. W. (2d) 5, it was disclosed that the driver of a truck was approaching a railway crossing at night at the rate of twenty-five miles an hour when he suddenly observed an oncoming freight train traveling about thirty-five miles an hour. Before he could stop the apparatus he ran into the side of the train and sustained serious injuries. He sued the railway company for damages.

The testimony introduced by the injured driver tended to show that the headlight on the locomotive was not functioning; that the bell was not ringing; and that the whistle was not blown when the train approached the crossing.

The testimony introduced by the railway company tended to show that the driver of the truck approached the crossing without exercising ordinary care for his own safety; that the headlight on the locomotive was lighted; and that the whistle was blown when the train was approaching the crossing.

The jury considered all of this contradictory testimony and decided that both the engineer and the truck driver were negligent, but that the engineer's negligence was the greater. Therefore, it rendered a verdict against the railway company allowing the injured truck driver damages, saying:

"The distance he (injured driver) was from the train when he discovered it was only an estimate, and the evidence tends to show that he did all in his power to stop the truck and avoid the collision after he discovered the train. . . . The undisputed evidence does not show that he was driving at a reckless rate of speed or that he could have discovered before he did that a train was coming by listening for signals and watching for same. . . . The rule of the Comparative Negligence is that an injured party, guilty himself of contributory negligence, cannot recover damages for an injury, unless his negligence is of less degree than the neglience of the railroad company or its employees. . . . The issue was properly determinable by the jury."

When Train Speed Regulations Are Valid

Usually, city ordinances will be held invalid, unless the state statutes or Constitution delegated power to the municipality to enact such ordinances. On the other hand, it is very often held by the Courts that ordinances regulating the speed of trains within city limits are police regulations, and that the power to pass them may be implied from the general powers of the city, as to abate nuisances and provide for the general welfare.

For example, in Switzler vs. Atchison, T. & S. F. Ry. Co., 285 Pac. 918, it was shown that a city enacted an ordinance prohibiting trains from being operated in the municipality at a greater speed than eight miles per hour.

A train collided with a motor vehicle seriously injuring its occupant who sued the railway company for damages on the grounds that the engineer was violating the ordinance and operated the train at approximately fifteen miles per hour.

The counsel for the company attempted to avoid liability on the contention that the ordinance was invalid, because it was not authorized by the statutes. However, the higher Court held the railway company liable, stating important law as follows:

"An ordinance regulating the speed of trains through a municipality, enacted under the exercise of police power,

(*Continued on page* 30)

THE ROUND TABLE

For Practical Discussion of Current Fire Department and Fire Management Problems

"SIMON says—"

Instantly the crowd of young people gathered to play the ever popular parlor game wait for instructions, whether it be to raise their thumbs, about face, or whatever the leader should command.

Outside the parlor game, things are different.

"Paris says—"

As fast as possible, wardrobes are considered obsolete and new gowns and wearing apparel are purchased to conform to what "Paris says." Within recent years pastel and light shades in textiles are favored as the popular and smart shades to wear. The darker colors that are selected by the more practical person are not looked upon with favor.

Those who participate in the "social swim" must frequently send wearing apparel to the cleaners to be refreshened and brightened.

Dry cleaning has developed into a very large industry, and if not properly regulated, it becomes a very potential fire hazard to the immediate locality. Volatile and explosive liquids are employed and where modern machinery is used, there is always danger of an explosion if the electrical equipment is not properly installed.

In the box on this page is the problem that is treated in this issue. In the box on the following page is the problem that will be discussed in the next issue. Should you have some comments that you would like to add to the next discussion, you are invited to write to the "Round Table Editor," FIRE ENGINEERING, 24 W. 40th St., New York, N. Y.

HERE IS THE PROBLEM

How do you regulate dry cleaning in your city?

What special equipment is required or what special regulations must be followed?

Discussion of the Problem

Many of the cities have developed dry cleaning ordinances that have removed much of the hazards attached to the dry cleaning industry. They make an interesting study and some of the more important sections follow:

W. M. Mullins, Chief, Roanoke, Va.: The construction and operation of dry cleaning establishments is governed by section 181 of our building code, portions of which are given below.

Buildings erected for use as dry cleaning establishments shall be of fireproof construction, not more than one story in height and no basement. All doors and windows in such buildings shall be of approved fireproof type.

The floors shall be of concrete and shall drain on all sides to a concrete gutter of twice the capacity of the amount of liquids in said building.

Such buildings shall be ventilated by means of air inlets six feet or more above the floor and not less than ten inches square, and not less than six feet apart. An exhaust fan must be provided at the floor level, and of sufficient size to change the air within the building every three minutes. Ventilation system shall be in operation at all times during the use of the building.

All heating shall be done by hot water or steam; no steam boiler, dynamo, motor or other power device shall be closer than ten feet to such building unless separated by standard fireproof wall. Drying rooms must be fireproof and must be separated from cleaning room by standard fireproof walls, and both washer and dry rooms to be equipped with an approved arrangement of steam jets at ceiling and floor with quick action lever values outside.

Only incandescent lights with vapor proof globes and keyless sockets will be permitted. Swinging lights to be protected with wire guards and all controlling devices to be placed subject to the approval of the city electrical inspector and to conform to the National Electrical Code.

Before any person, firm or corporation shall be permitted to conduct a business of dry cleaning in any building, such building shall be inspected by the building inspector and the Chief of the Fire Department and a certificate obtained that in their opinion such building is a suitable place to conduct such business.

S. B. Lent, Chief, Bremerton, Wash.: Dry cleaning establishments in the city of Bremerton are governed by Ordinance 860, extracts of which follow:

The City Commission is authorized upon application of any person, firm, or corporation to issue a license for the operation of a dry cleaning plant within the city limits upon the payment of the sum of fifty dollars annual license fee therefor. Provided, however, that before such license shall be issued, the City Commission may inspect or cause to be inspected the building and premises upon which said plant is to be operated and may in its discretion require the applicant to furnish the plans and specifications under which it is intended to construct and operate a dry cleaning plant.

The City Commission is granted power and authority in its discretion in the interest of the public health and safety to refuse to grant any application for a license to operate a dry cleaning plant where the applicant has not complied with the terms of this ordinance.

Every dry cleaning plant within the city limits of the city of Bremerton shall be housed in a building constructed with fireproof walls. Such establishments shall not be conducted or maintained in any building any part of which is used as an apartment house, lodging house, or which has located in it living quarters of any nature.

All storage tanks and clarifying tanks must be buried at least four feet under ground. All exhaust from equipment used in the operation of such plants shall be on the outside of the building and not less than nine feet from the ground.

No stove or fire box of any kind shall be operated in the room housing a dry cleaning plant unless it be surrounded by fireproof walls. All electric motors used in connection with said business must be installed at a point not less than eight feet above the machinery installed for the use of dry cleaning therein or installed in another and separate room.

John J. Towey, Chief, Newark, N. J.: The business of dry cleaning shall not be carried on within the city limits unless a permit has first been obtained from the Inspector of Combustibles and Fire Risks, and such permit shall not be issued unless all the provisions of the ordi-

nance relating to dry cleaning are observed, and formally approved by the said inspector.

No dry cleaning shall be permitted, except in a building used exclusively for the purpose of dry cleaning and its kindred trades only, which said building must be equipped with approved fire doors, metal window frames, wired glass sashes or automotive fireproof shutters and wired glass skylights. It shall be unlawful to have, locate, use or maintain a steam generating boiler within the walls of any such building or in any place adjacent nearer than fifteen feet to such building, unless such generating boiler shall be enclosed within walls of brick, cement or other non-combustible materials at least twelve incehs in thickness. All such buildings are to be heated by steam or hot water only, and ventilated within twelve inches of the floor.

Benzine houses of clothes cleaning establishments must be of fireproof construction, other than metal, not more than one story in height, nor exceeding twelve feet square in area, with roof of reinforced concrete or metal on angle irons, and floor of concrete.

All gasoline, naptha, benzine, benzole or other volatile or inflammable liquids used in the process of dry-cleaning, in quantities of thirty gallons or less, shall be kept in five or ten gallon approved cans or containers and all such liquids in quantities in excess of thirty gallons shall be kept in tanks of approved design and construction, of iron or steel not less than three-sixteenths of an inch thick. Such tanks shall rest upon and be anchored upon a bed of concrete so that the top shall be not less than three feet below the surface of the ground. No quantity in excess of five hundred gallons of any such volatile, inflammable or combustible material shall be permitted in any one tank. Vent pipes shall be of wrought iron not less than one inch in diameter, and extend at least three feet above the roof or roofs of any building within twenty feet of such underground tank.

It shall be unlawful to use or convey from one place to another any inflammable or combustible material in any open can, tub or vessel whatsoever, and no permit shall be issued by the Inspector of Combustibles and Fire Risks unless the system of handling gasoline or similar liquid by means of pipes, pumps, or syphons, shall meet with his approval. Nor shall any such liquid be allowed to fall into or pass into the drainage system of any such premises.

HERE IS THE PROBLEM FOR THE NEXT ISSUE

Should every member of the company be trained to drive fire apparatus or should just a few men and officers be instructed?

Who is held responsible when mechanical trouble develops?

Are the drivers appointed or elected, and do you believe your plan is the most satisfactory to follow?

William Nill, Chief, Hammond, Ind.: All dry cleaning establishments are under the jurisdiction of the State Fire Marshal of Indiana. On the first day of January of each year a permit must be taken out or renewed. Permits may be refused, suspended or revoked by the state fire marshal for fraud in procuring the same, or a violation of any law of the State of Indiana.

The heating of such buildings shall be secured only by the use of a steam or hot water system. The lighting of dry cleaning rooms shall be secured only by keyless socket incandescent electric lights with globes or bulbs in vaporproof receptacles, and all switches, cutoffs or fuses used in the installation or operation of such lights shall be located and operated from the outside of such dry cleaning room.

No storage tank shall be placed, constructed or maintained under a public sidewalk or in a sidewalk area.

No carbon disulphide, gasoline, naphtha, benzol, benzine or light petroleum or coal tar product used in the dry cleaning or dry dyeing business shall be distilled or redistilled in connection with the said dry cleaning or dry dyeing business except in a building of fireproof construction, which building must be located not less than ten feet from any building.

E. A. Johnson, Chief, Boulder, Col.: It shall be unlawful for any person, association of persons or corporations to use gasoline within the city limits for what is known as dry cleaning establishments unless the regulations and prescriptions of the dry cleaning ordinance are carefully followed. It shall be unlawful for any dry cleaning establishment to keep gasoline in stock or store gasoline within the city unless such establishment stores gasoline in the methods prescribed in the ordinances of the city.

It shall be unlawful for any dry cleaning establishment to conduct such a business in any building unless the building in which such cleaning is done be constructed exclusively with brick or stone walls, non-combustible roof and roof supports, and provided further, that such building shall not be closer to any dwelling, business house or other building than fifty feet where the openings in the dry cleaning establishment face such buildings, and provided further, that such dry cleaning establishment shall not be closer, in any case, than twenty feet to any other building even where no openings in the dry cleaning establishment face such other building; the floors of such establishment to be fireproof and without any space beneath the floor in which gasoline vapor can accumulate. Adequate ventilation to be provided, also that doors and windows be provided with fireproof doors and shutters as prescribed.

All dry cleaning, washings, extracting and redistilling shall be carried on in closed machines, which shall be fluid tight, washers shall have hinge doors and shall be arranged so that in case of an explosion the doors will automatically close. Transfer of all fluids shall be through continuous piping and drain by gravity to settling or storage tanks. Setting tanks shall be constructed, located and vented as is provided by ordinance for storage tanks. At the close of the day's operations all liquid contained in washers, extractors, or stills, or otherwise, shall be returned to the storage or settling tanks. No operation or cleaning process shall be carried on in such premises except during the day time and then only between the hours of 6 a.m. and 6 p.m.

W. Glen Bixler, Chief, Arlington County, Va.: As far as I know there are no special regulations in Arlington County governing the dry cleaning industry.

J. E. Taplin, Chief, Blackwell, Okla.: We do not have an ordinance regulating the installation of dry cleaning plants. Since the Chief of the Fire Department is also building inspector and must issue permits and certificates of occupancy, it makes possible the regulation of such establishments.

In the case of our latest and most modern dry cleaning plant which we have in our city, the owner erected his building according to plans suggested by the building inspector. This makes regulation of cleaning plants comparatively easy.

Special attention is given to ventilating the rooms where the cleaning and dry tumbling are done. Ventilation is usually accomplished by ventilating fans and pipes leading from the bottom of the room and extending through walls and well up above the building line. Fireproof self ventilating windows and provisions for application of steam to the devices used for cleaning are the main provisions required.

We have not had a fire in any cleaning establishment for the last six or eight years. This is probably due to the prevailing use of modern cleaning solvents instead of gasoline.

F. W. Bennett, Chief, Durham, N. C.: Dry cleaning plants are not allowed in the fire district of the city. They are only permitted in a zone set aside for such purpose. The plant must be of fire resistive construction. Before a plant can be erected, the location must be approved by the Chief of Fire Department and Building Inspector.

We have no dry cleaning plants in the high value dis-

(*Continued on page* 24)

With the Editor

Another Type of Sidewalk Chief

The species of sidewalk fire chief who stands at the curb and tells the fire department how it should fight a fire is well known. But a new type has blossomed forth: he tells the fire department officers how they should operate through the columns of the public press.

Specifically, a recent issue of the Springfield, Mass., *Union* carried some advice from the pen of a prominent business man, which information was given in connection with a description of the campaign now under way sponsored by the National Fire Waste Council to reduce fire losses, and "educate firemen into the use of discretion." The following paragraphs are reprinted from the article referred to:

"Each year sees millions of dollars worth of structures destroyed by flames, but there is a huge additional loss arising from the destruction of building contents, not by the fire itself but by the destructive methods of fire fighters.

"Anyone whose house has caught fire or who has watched a conflagration is aware of the manner in which the firemen cause a great deal of damage by the use of their axes and by pouring more water into buildings than is needed.

"Firemen are in great haste and work under pressure. It is customary for them to break down doors with their axes in order to save the few seconds which might be required to gain access in more conventional manner. Windows are smashed in, roofs are broken through, and any object which seems at all in the way is damaged or destroyed."

Well, well! Is that so?

The American fire service will be profoundly thankful for this information, for surely the author would not serve as a mouthpiece for the National Fire Waste Council unless he was considered thoroughly informed.

Like the other breed of sidewalk fire chief, he has probably secured his information from the sidewalk across from a fire, or, if the fire service has his number, from outside the fire lines.

We wonder if this author has ever stood alongside members of a modern fire department trying to effect an entrance to a locked building where the fire is spreading throughout the structure with tremendous speed? If so, he might well modify his statements regarding the destructive use of the axe for forcing doors. While it is true that there are special appliances which in many cases can open the doors of buildings, there are a great number of instances where the axe is the quickest and most effective tool for opening up a locked door.

As for breaking of glass, apparently he has never heard of ventilating a burning structure. May we remind him of an incident which happened in the New York Fire Department prior to Chief Kenlon's time. A political appointee, who was also a sidewalk fire chief, noticed the men breaking windows to provide ventilation at a large fire, and not understanding the reason for this, he immediately proceeded back to his political office and issued an edict forbidding the unnecessary breaking of glass at fires. The result of this edict set the science of fire fighting back ten years. Instead of opening the building for ventilation, and thus making it possible for the fire force to follow the fire up at close range and make quick work of it, the fire department officers felt obliged to prohibit breaking of windows and skylights and the men had to take tremendous punishment while the fire accumulated and mushroomed in the upper stories of the fire building. It was not until Chief Kenlon took command of the department, and asserted himself, that ventilation was again performed and many buildings thereby saved.

A defense of the fire service in the breaking of glass is unnecessary; anyone who knows modern fire fighting will gladly explain to the misguided writer the purposes of breaking glass, both at the front of a building and on top, over vent shafts, airways, and other vertical shafts.

The author also seems to be worried about the fact that damage is done by the fire department "pouring more water into the building than is needed."

The fire service will gladly welcome his cooperation if he will provide a table of figures showing just the amount of water that should be put on each particular fire. We feel sure that fire chiefs will appreciate such a table, so that water damage might be completely eliminated.

At the same time we would call his attention to the growing practice in fire departments of performing salvage work to eliminate water damage. Covering the goods on the fire floor, where possible, and on the floors below, with waterproof covers, makes it possible for the department to use streams of sufficient pressure and volume to quickly extinguish a fire, and at the same time reduce or eliminate water damage.

We are curious to know just what fire department this new sidewalk chief observed in order to secure the information which he has so generously presented to the American public, but we can confidently say, without this information, that if he is representing the National Fire Waste Council he has done infinite damage from the standpoint of fire department cooperation with that organization by painting the fire department as a destructive, unreasonable agency. Under these conditions can future cooperation on the part of American fire departments be expected?

Cry of "Fire" in Public Assemblages

Recently in a Brooklyn, New York, moving picture house the audience was thrown into a serious panic by the ever present idiot who is ready, at the slightest excuse, or for no excuse at all, to shout "Fire!" at the top of his—or her—lungs. This nuisance is one of the worst menaces from a fire standpoint with which the proprietors of places of public amusement and those in charge of the safety of the audiences have to deal.

In this particular instance, fortunately, there were no more serious consequences than a few bruises and torn garments. The trouble was caused primarily by the mischievous prank of a boy, who removed the cap of a radiator, allowing a jet of steam to escape. An excitable individual at some distance across the auditorium mistook the white vapor for smoke and, following the instinct of his kind, promptly raised the cry of fire.

Pandemonium at once broke loose. The contagious spirit of mob-panic—the most dreaded thing from a fireman's standpoint in a large public assemblage—spread like wildfire among the audience, and a rush for the exits began without order and with only one thought in the mind of each member of the audience—personal safety. If the weaker—and there were many children in the audience—were trampled in the stampede, that was their lookout. One of the exits was blocked by the rush of escaping steam from the radiator. The only other one was soon clogged by struggling human bodies, tearing at each other's clothes in their blind effort to escape.

The arrival of the police probably saved a catastrophe—they soon untangled the human mass and calmed the excited members of the mob.

As a rule the American audience is inclined to be calm in stress of this nature. The inbred knowledge imparted by the fire drill in schools and factories that safety lies in keeping one's head in such an emergency has a potent effect, usually, in large assemblages of people, and men, women and children, as a rule, display a remarkable steadiness in time of danger. In this particular instance, apparently, the influence of mob psychology triumphed over this characteristic and the panic was the result.

Fire Alarm Superintendents Meet

The December meeting of the Eastern Association of Superintendents of Fire and Police Telegraph was held at Stamford, Conn., December 10 and 11 at the Roger Smith Hotel. Business meetings were held at Fire Department Headquarters. The meeting was called to order at 11 o'clock on the morning of the first day by President George Bowen of Springfield, Mass., and the report of Secretary-Treasurer Timothy C. O'Hearn of Cambridge, Mass., was presented. Reports of the various committees were also heard.

Members of the association were welcomed to Stamford by Fire Commissioner K. W. Carter, acting for Mayor W. W. Graves who was absent from the city. Secretary O'Hearn read a paper on the use of the radio by the Detroit, Mich., Police Department, in connection with the automobile patrol system now in use in that city. A general discussion of this paper and the reports submitted earlier in the meeting followed. The members adjourned to the Davenport Hotel at 1 o'clock where luncheon was served.

INDEX TO VOLUME LXXXIII

The Index to Volume LXXXIII, FIRE ENGINEERING, from the January 8 to the December 24, 1930, issues, is now off the press and will be mailed to readers on request.

The afternoon session opened at 2 o'clock with a talk by J. M. L. Groby, New England Commercial Manager, and J. B. Rustic, representing the American District Telegraph Company. The subject was "Central Office Supervision and Its Ramifications." This was followed by an address by E. W. Davis, Assistant Electrical Engineer of the Simplex Fire and Cable Company, who took for his subject: "Fire and Police Wire and Cables." A discussion of the National Fire Prevention Association rules and the inspection by the members of the new Central Office equipment of the Stamford fire alarm system installed recently by the Gamewell Company, brought the day's session to a close. The Round Table dinner of the association was held at 6:30 o'clock at Rich's Restaurant on the Boston Post Road.

At 11 o'clock in the morning of the second day a talk and demonstration of the Teletype, as used in connection with fire alarm signaling, was given by D. R. Day, District Sales Manager of the Teletype Corporation. Unfinished and new business was then taken up upon completion of which the meeting adjourned.

Frank F. Veit, Superintendent of Fire Alarms, of Stamford acted as host to the association. Forty members of the organization were present. The next meeting will be held at Springfield, Mass., during March.

THOMAS F. MAGNER.

Brainerd to Regulate Oil Storage

Chief Frank W. Fuller, of Brainerd, Minn., has urged the city to pass ordinances to regulate the storage, sale and use of inflammable liquids, and it is generally believed that the measures will be passed shortly after the new year.

Chief Frank W. Fuller

Those drafting the code considered similar ordinances now in effect at Minneapolis, St. Paul and St. Cloud, Minn.

The ordinance in general covers location, installation of tanks for the storage of gas and oil in bulk and service stations, safety appliances, establishes a zoning plan for tanks between the Mississippi River and 11th Street on the right of way of the Northern Pacific Railway, provides that all tanks be dyked or walled to localize the fire in case of a ruptured tank and provides for the licensing of the bulk storage tanks.

The regulation governing zoning of tanks will not affect those already installed but all tanks must be dyked.

No bulk station can be located 400 feet from a public building and no service station can be constructed 50 feet from a public building.

Whitehall, Pa., to Buy Fire Apparatus—Bids were opened by Whitehall Township, Pa., for a 750-gallon triple combination pumper.

Elwood, N. J., Orders New Pumper—Elwood, N. J., has ordered a 300-gallon pumper equipped with a large booster tank. Delivery is expected soon.

New Rochelle to Improve Fire Alarm—The Board of Fire Commissioners of New Rochelle, N. Y., has opened bids for placing the fire alarm cables underground.

Questions and Answers

NOTE—Readers are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified

Pressure from Pumps in Tandem

To the Editor:

Will you please answer the following question at an early date in FIRE ENGINEERING?

Two engines are hooked in tandem, or directly together; the first engine is delivering water to the second engine at a pressure of 300 lbs. The second engine is also delivering water at 300 lbs. pressure, or using its own engine power to give 300 lbs. pressure. Will the pressure at the outlet of the second engine be 600 lbs. If not, what will it be? J. M. C.

Answer: Theoretically the two engines, each creating 300 lbs. pressure and hooked in tandem, will give 600 lbs. on the discharge side of the second engine. But in actual practice, the discharge pressure will be less than this amount, depending upon the type of pumpers employed.

The ability of different pumping engines to pass water through their pumps without diminution varies with the pump design. It is probably greatest in the case of centrifugal pumps. The reason for this is all in the design characteristics of the pump. In the case of a centrifugal pump, where it has several stages, the first stage creates a certain amount of pressure and the succeeding stage takes the water at this pressure and raises it by a certain amount before discharging to the next stage. Hooking two centrifugal pumps in tandem would, to a certain extent, be equivalent to doubling the number of stages in the pump on either, provided the pumps are identical. Of course, there will be some pressure loss due to friction in pump fittings and hose connecting the two pumpers.

Rotary and piston pumps will show a greater pressure drop when hooked in tandem.

Nozzle Pressure and Friction Loss

To the Editor:

Will you please answer the following question in your columns?

What will the friction loss be in a 1,000 foot stretch of 2½" hose, using a 1" nozzle and a hydrant pressure of 75 lbs.; also what would the nozzle pressure be? M. B.

Answer: With a 1,000 ft. stretch of 2 1-2 in. hose, equipped with a 1 in. nozzle, and a hydrant pressure of 75 lbs., the nozzle pressure would be in the neighborhood of 22 1-2 lbs.

Friction loss would then be 75 minus 22 1-2, or 62 1-2 lbs.

Static Pressure

To the Editor:

Will you kindly answer the following problems for me? I have a book on practical hydraulics but cannot find any example that will assist me in working these out:

1. There are 150 gallons of water in a standpipe having an inside diameter of 5 inches. What is the pressure at the bottom of the pipe in pounds per square inch?

2. A standpipe conected with a hydrant has 75 ft. of water. How high would the water be in a hose line 300 ft. along the ground and 80 ft. up a ladder, both on the same hydrant? K. A. B.

Answer 1. First find the weight of water in the standpipe. There are 150 gallons and the weight per gallon is 8.35 lbs. 8.35 x 150 = 1,252.5 lbs., the total weight of water in the standpipe.

The area of the standpipe (cross-section area) is found by the usual formula and is figured as follows:

Area = $\pi \times D^2 \div 4$ where π is 3.1416, and D, the diameter of the standpipe in inches.

Then the area equals 3.1416 x 25 ÷ 4, or 19.635 sq. inches.

Divide the total weight of water in the standpipe by its cross-section area, and we get the pressure in pounds per square inch.

Or 1,252.5 ÷ 19.635 = 64.4 lbs. per square inch.

Answer 2. As long as there is no flow of water in the hose, the water in the hose will reach the same level as it does in the standpipe, or 75 feet. This is a very good example of the old rule that "water seeks its level."

Teamwork at a Fire

To the Editor:

Below is given an outline of a fire which occurred recently in this city, together with the procedure on the part of three companies operating thereon.

Following the description appear several questions which I wish you would answer in an early issue. P. R.

1. An alarm for fire discovered in combined store, poolroom and dwelling; occupant later disclosed as out of town.

A. Engine Co. X, first in, together with its tender, a booster pumper combination apparatus with 2½", 1½" and 1" hose, etc., and District Chief responds. Building, front portion two stories with finished attic, concrete block construction to which rear two-story frame addition has been added. Second story of rear frame addition found fully involved and whole building heavily charged with smoke and gas and glass bulging from pressure. Pumper stretches in approximately 800' of 2½" line and hooks up to nearest hydrant, with 4½" suction (hydrant also has two 2½" outlets). Booster combination connects gated Y to 2½" line and stretches in one 2½", one 1½" and one 1" booster line; former two lines into rear addition and the 1" line into front of building where booster is stationed; erects ladders and ventilates first the rear addition and then the front part. 2½" and 1½" lines direct streams into bulk of the fire and underside of addition roof from opposite sides, and end at rear.

B. Engine Co. Z responds next from adjoining municipality and stretches in a 2½" line from Engine X at hydrant and goes into service in "addition," under direction of the District Chief.

C. Result: Fire is rapidly "knocked down" and held from spreading into front concrete block portion of the building, which suffers only through charring of wood trim and contents located in back rooms abutting rear frame addition on second floor, since the front portion at that time became seriously involved. Second floor of "addition," gutted by fire though its roof remained standing (fire did not get through roofing of tar-felt paper); besides a hole near the east wall of the addition was burned through the floor to steel ceiling of the first floor poolroom and in this ceiling at this point the fire apparently originated due to defective electric wiring. The fire came under control rapidly from the time the building was ventilated and the lines advanced into the interi-

or advantageously as the smoke cleared out. In overhauling another gated Y was placed in engine Co. Z 2½" line and a 2½" line stretched to the booster apparatus to refill the tank and supply the 1" booster line while an added 1½" line was stretched into building for convenient handling and lowering the water loss.

D. Engine Co. Y, second due, arrived after Engine Co. Z, above mentioned. Co. Y, together with its ladder truck (city service type) and booster pumper hose combination responds with Engine X to all alarms coming through the police or headquarters alarm control switchboard.

Upon arrival at fire, Engine Co. Y stretched a 2½" line from fire to same hydrant to which Company X had its pumper connected and pumping through two 2½" lines as above described. Officer in charge of Engine Co. Y, not having reported to the District Chief for direction previously, ordered the engineer in charge of Engine X to shut down the hydrant and, in consequence, the two 2½" lines fighting the fire in order that Engine Y pumper might hook up with soft suction to one of the available 2½" outlets on the hydrant. Engineer of Engine X refused and was backed up by the Assistant District Chief, who happened to be temporarily at that point.

Note: In way of explanation it may be mentioned that said hydrant is dead-ended on 6" main fed from distant 8" main, also that two other hydrants were available at greater distance than said hydrant from the fire but within range of Engine Y hose capacity to stretch in a line in at least one instance, as was done by said Engine Y at a former fire in the same property. And at no time, in the judgment of the District Chief in charge of the fire, was there need for more water than Engine X was supplying through the two 2½" lines already in service. Also, the District Chief considers that at the time the request to Engine X to shut down their pumper was made, such action would have been extremely ill advised if not criminal in its consequence to men on lines at fire as well as property.

2. The District Chief being at the fire and fully engaged in fighting the fire had no knowledge of the occurrence at the hydrant up to the time he encountered a former officer of Engine Y on the fire grounds and advised him to instruct the officer in charge of that company that there was no further need for the company to remain at the fire. Said former officers remarked then to the District Chief that his company was already "taking up" and returning to its station due to the occurrence at the hydrant and would stay away, whereupon the District Chief hunted up the officer in charge of Engine Y, who related the occurrence and insisted that Engine X engineer and Assistant District Chief should have shut down. In reply the District Chief firmly but courteously "backed up" the action of the Assistant Chief and the engineer as eminently wise.

A. Shouldn't the officer in charge of Engine Y apparatus and men have reported to the District Chief in charge of the fire for instructions as to placing apparatus and men in service?

B. Did the officer in charge of Engine Y err in asking Engine X engineer to shut down?

C. Did engineer of Engine X err in refusing to shut down the hydrant and pumper supplying the only lines on the fire at the insistence of the officer of Engine Y, especially in view of the fact that he was backed up by the Assistant District Chief present?

D. Did the District Chief err in afterward backing up the action of engineer X and the Assistant District Chief before the officer of Engine Y?

E. Under the circumstances and in view of the facts as stated, was the officer in charge of Engine Y in anyway justified in announcing that he would withdraw his apparatus, equipment and men from the fire grounds? And then without advising or consulting the District Chief in charge in proceeding to do so?

F. In view of all the aspects of the occurrence, what disciplinary measures should be taken to properly bring the action of the officer of Engine Y up in a way that said offending officer will realize clearly his responsibility on the fire grounds and his duties as a fireman at all times?

G. What are the duties of an engine company commanding officer.

H. What is the first duty of the District Officer toward another District Officer in charge of a fire at which he is called to assist?

Note: In reciting the facts relative to the occurrence at the hydrant it was not stated that the officer in charge of Engine Y was discovered removing the caps from the hydrant 2½" outlet while pressure of some 80 lbs. static was being maintained in the main and also that he had unscrewed the cap but for a thread, without notifying anyone, when he was stopped by the Assistant District Chief. Had the cap been wholly unscrewed under pressure it would undoubtedly have projected dangerously besides shutting off all water on the fire and endangering Engine Co. X pumper.

Answer: A: Yes, if the District Chief were in charge of the fire at the time Company Y arrived, the officer in charge of this company should certainly have reported to the District Chief for orders.

B. Yes, the officer in charge of Engine Co. Y erred in asking the engineer of Engine Co. X to shut down.

C. No, the engineer of Engine Co. X did not err. He was carrying out the instructions of the officer in charge at the fire and had no authority to shut down the hydrant.

D. No.

E. Absolutely no. The trouble with many fire departments in operating at fires is that each officer wants to do as he himself thinks best. Such is contrary to efficient operation. Only one man can be in charge of a fire department and he is the superior officer at the scene. In this case the District Officer was in charge until relieved by a superior officer, and while he was in charge all orders relative to placement and operation of apparatus should have come from him.

F. This should be covered by the rules and regulations of your department. It is assumed that it is a volunteer department, and if regulations do not cover action such as taken by the officer of Engine Co. Y, then it is time that such regulations be established to satisfactorily handle a situation of this nature should it again arise.

G. First, to carry out instructions of his superior. Then, to so conduct the affairs of his company as to secure maximum effectiveness, both en route to and in operation at a fire. At all times he must abide by the rules and regulations covering his particular rank.

H. Ordinarily the first district officer at a fire is in charge even though another district officer arrives. The second district officer arriving usually reports to the first district officer on hand for instructions, and works subordinate to him.

Fire Prevention Program on Air

The National Fire Protection Association has made arrangements with the National Broadcasting Company to send out a talk of interest to fire chiefs over the eastern and mid-eastern network on Monday evening, January 12, at 6:55 p. m. Eastern Standard Time. The program is intended to say something about the new educational program of the fire chiefs and particularly their responsibilities as advisors of the residents of their cities.

St. Louis to Hold Instructors' Conference—The annual conference of the fire department instructors of the various inspection bureaus operating in central western territory will be held at the St. Louis Fire Department Drill School, January 6-8, 1931. A number of guests have been invited. The latest ideas of fire department operation and salvage practice will be given.

Chief's Club Enjoys Ladies Day

"Ladies Day" was observed by the Fire Chiefs' Club of Massachusetts on December 17 with a luncheon and Christmas party in the Salle Moderne of the Hotel Statler in Boston.

Chief Selden R. Allen, of Brookline, President of the club, conducted the proceedings in his usual inimitable manner and caused much amusement by his remarks while distributing a large number of holiday gifts which were donated by representatives of apparatus manufacturers and fire department supplies who are associate members of the club. A live turkey presented by George Ernest Robinson, Architect of Boston, was won by Mrs. Albert E. Hiller, wife of Chief Hiller of Plymouth.

There were 227 persons at the party which was one of the largest and most successful ever held by the club. Among the guests were the officers and directors of the New England Association of Fire Chiefs. There was orchestral music, singing, and entertainment by a magician.

HARRY BELKNAP.

Forest Fires in Connecticut Increase

The annual report of Austin F. Hawes, State Forester of Connecticut, which was filed recently with Governor John H. Trumbull, shows some illuminating statistics. The report, although interesting, is hardly encouraging and the hope felt over the results of the fire seasons of 1928 and 1929 was offset by the tragedies of 1930.

On May 4 alone of the past year more land was burned over in the state of Connecticut than in the entire year of 1929. For ordinary fires the hand pumps, of which 1,200 have been distributed to the wardens, did excellent service, Mr. Hawes' report states. They could not, however, be used to advantage in the intense heat and high winds of such unusual days.

The report contains an interesting table showing the dates and weather conditions accompanying the fires since 1922 which have burned over 1,000 acres each. In the nine years period there have been 27 such fires, which burned an average of 1,966 acres per fire in Connecticut, besides a considerable area in other states. They all occurred in the period between April 12 and May 26.

Ten forest fire lookout stations are maintained by the state. There are six Forest Protective Associations controlling 90,000 acres of private forest. In 1928 and 1929 only 260 acres of this protected land was burned. The protection of these lands is largely by means of special patrolmen. These patrolmen, in the two year period made 61 arrests; issued 1,158 warnings; discovered 30 fires and extinguished 17 without assistance.

The ravages of the spring fire season of 1930 will be readily recalled. Even cities felt the direct result of these disasters. So greatly was the public impressed and so evident were the dangerous and economic possibilities, that a forest fire council was held in the Connecticut State Capitol, Hartford, on May 23, where the following legislation was recommended.

1. A law to place fire patrolling on the same basis as fire fighting.
2. A law similar to that in the state of Massachusetts authorizing the governor to close the woods in dangerous periods to all except the land owners and their agents.
3. A law giving the State Forester or authorized agent the same authority to serve criminal process as that enjoyed by grand jurors, constables, etc.
4. A law penalizing the throwing of lighted matches, cigarettes, etc., into dry grass, dead leaves and other inflammable material.
5. Increased appropriation for the purchase of fire fighting equipment.

THOMAS F. MAGNER.

Fleet of Mack Pumpers Delivered to New York City

The first of the Mack pumpers purchased by the New York Fire Department, seven all told, were tested at the foot of West 54th Street and then placed in service. The pumps are designed for 700 g.p.m., and according to a department official, "They developed thirty per cent more capacity than the requirements of the contract." The test was observed by Fire Commissioner John J. Dorman and other department officials. The pumpers were operated for twelve continuous hours. The road test consisted of a twenty-mile run in fifty minutes and negotiating ten, twelve and fifteen per cent grades. WM. JEROME DALY

Chief Joynes Observes 50th Anniversary

A handsome grandfather's clock was presented by members of the Richmond, Va., Fire Department to Chief William H. Joynes in honor of having completed fifty years' service with the force. He joined the local department on December 27, 1880. He still has the badge that was given him at that time.

Chief Joynes believes that he has held his position as commander of the city firemen longer than anyone ever did before him. In 1908 he was promoted from Assistant Chief to head of the department.

When Chief Joynes entered the fire service there were five companies. Each company was required to answer three or four fires a month. Today he is in command of twenty-three companies and 322 men.

Chief Wm. A. Joynes

Chief Joynes is seventy-five years old and anticipates many more years of service as head of the Richmond, Va., Fire Department.

Chief Roddy of Monroe Injured

Chief Frank J. Roddy of Monroe, La., was seriously injured while responding to a blaze that swept five stores in the downtown section of Monroe, Sunday morning, December 28. The fire caused a $50,000 damage.

Aerial Ladder Delivered to Monaca, Pa.—An aerial ladder truck costing $16,000 has been delivered to Monaca, Pa.

New Service Truck in Dover, Del.—A new service truck has been delivered to the Robbins Hose Company of Dover, Del.

San Antonio to Erect New Station—According to Commissioner Phil Wright of San Antonio, Tex., the next fire station will be erected in the Highland Park section.

Fort Worth Buys Fire Alarm Boxes—Fort Worth, Tex., has purchased one hundred new fire alarm boxes making a total of 410. The National Board of Fire Underwriters has recommended five hundred fire alarm boxes.

Work Started on Warren, O., Station—Construction has started on the new fire station for Warren, Ohio. Chief D. K. Moser has been trying to secure a new station in the East Side section for some time.

Two Injured by Skidding Fire Apparatus—Two firemen of Philadelphia, Pa., were injured when apparatus on which they were responding to a fire, skidded and crashed into the curb. The firemen were hurled onto the sidewalk and were rushed to the hospital in a taxicab.

Kenton, O., Inspects Business Places—During the holiday seasons, Chief William Cottrell of Kenton, Ohio, made frequent inspections of the business houses to see if the decorations employed were in accordance with good fire practice. Places of public assembly were also visited.

CHAMBER OF COMMERCE PLANS TO EDUCATE FIREMEN

Will Show Them How to Put Fires Out With Minimum Water Loss and Other Damage

The following article, published as a dispatch from the National Capital in a recent issue of the Springfield, Mass., "Union," is printed in its entirety:

Washington, Nov. 2—In conducting a campaign to reduce fire losses in the United States, the National Fire Waste Council is directing particular attention to what are known as content losses. Each year sees millions of dollars worth of structures destroyed by flames, but there is a huge additional loss arising from the destruction of building contents, not by the fire itself but by the destructive methods of fire fighters.

Anyone whose house has caught fire or who has watched a conflagration is aware of the manner in which the firemen cause a great deal of damage by use of their axes and by pouring more water into buildings than is needed.

Firemen are in great haste and work under pressure. It is customary for them to break down doors with their axes in order to save the few seconds which might be required to gain access in more conventional manner. Windows are smashed in, roofs are broken through, and any object which seems at all in the way is damageed or destroyed.

How much more actual damage from flames would be caused by a slightly more deliberate method of working cannot be definitely ascertained. Cases would differ. A structure of highly combustible material burns more quickly than a building of more resistant construction. Where explosives are believed to be in a building or where lives are thought to be in danger, it is worth while to save every second. In many fires that is not the case.

The Council's campaign is to educate firemen into the use of discretion in these matters. Fire companies in principal cities are being urged to have more regard for building contents. For example, as most fire companies now operate, water continues to flow into a building until an order comes from some officer in command to turn it off. The Council's investigations have shown that frequently the water is kept flowing after every spark has been extinguished because no one has issued the order to cease. Much property can be destroyed by moisture as readily as by fire. It is the idea of the campaign to have all firemen educated in discretion to a point approximating that of their officers.

An Ounce of Prevention

Next is the instruction of the public of cities in fire prevention methods. Most fires are the result of carelessness. Inflammable waste material—old boxes, rags, old clothing—nearly always useless and without value, are left lying around inviting sparks. The Council is making an effort to warn people to destroy such valueless things before they are the agency of destruction of property and often of life.

To this end, firemen are being organized to make close surveys of every building in their particular district. Every nook and cranny is being studied and where places susceptible of catching fire are found, the owners are warned to take steps to remove the menace.

Another step in the instruction of the public consists in informing property owners how to call fire department companies in the speediest manner. The location of every fire call box is being shown to every citizen so that in case of a blaze there will be no hesitancy about what to do to bring assistance. This includes not only householders but the occupants of business offices, factories, and all other buildings. Particular pains are being taken with the instruction of night watchmen. These are being told of the many hazards in night fires and what to do to minimize damage.

The firemen themselves are not being omitted from this general campaign of education. They are being taught to memorize all fire-fighting facilities in their districts and also to familiarize themselves with every building by street and number. This means that when word reaches the fire house that there is a blaze at such and such a location, the firemen will know exactly where that place is and how to reach it with the utmost dispatch.

Then, too, they must learn what buildings have sprinkler systems and where all shutoffs and water controls are placed. They must know the location of every fire escape and its condition. A constant routine of inspection must be carried on.

Many factories bank their fires overnight, often with no one but a night watchman on the premises. The firemen are being required to learn where every such fire is burning and to be prepared to reach it in the event of its getting beyond control.

An innovation which will be especially welcome to householders is introduction of the use of tarpaulins. A check made by the Council in connection with certain fires revealed that the damage to contents of both residences and stores by water and the blows of axe-wielding firemen actually exceeded the damage done by flames. Now, fire companies are being equipped with tarpaulins which are spread over property to protect it while the water is playing.

Boy Scouts Assigned Duties

To make certain of complete coverage from the point of view of early warning of fires, the Boy Scout organizations of the country are being brought into the campaign. With the cooperation of Scoutmasters, a Scout is being assigned to every city block in cities where the Fire Waste Council's campaign is in progress. It usually is the block in which he lives or at least near by. He must become acquainted with the location of the nearest fire alarm box and with the details of construction of every building in his block. Moreover, so far as he can he must inform everyone living in his block of the whereabouts of all fire-fighting facilities. Also he must be alert to discover possible fire menaces. When he finds accumulations of inflammable material he must report it to the fire captain of his district.

The results of this campaign are amazing. Until the Council began its investigations there was little general realization of the millions of dollars of unnecessary waste due to carelessness in connection with fire. The Council claims that if full cooperation is given by the American people the Nation's annual fire loss can be cut 80 per cent, that enormous amount being directly traceable to preventable conflagrations.

Boston Department Band Incorporated

The Boston Fire Department Band has been incorporated and officers and a board of governors appointed in order to insure its permanence, and to provide for the raising of an emergency relief fund. The board is composed of prominent and representative citizens.

Mayor James M. Curley is Honorary President, Fire Commissioner Edward F. McLaughlin is Executive President, and Gordon Abbott, Jr., is Treasurer and Secretary. The Band Master and Musical Director is Fortunato Sordillo.

A concert was given in Jordan Hall of the New England Conservatory of Music on December 18. Rehearsals have been held weekly in the hall in the quarters of Engine Cos. 26-35 on Broadway. It is planned to raise a fund for the benefit of widows and children of firemen whose death results from injuries or illness from exposure in the line of duty.

HARRY BELKNAP.

Business Block Destroyed in Brunswick

Fire of unknown origin that started in a garage in Brunswick, Ga., on Christmas Eve completely wiped out an entire business block in the heart of the mercantile section. Throngs of holiday shoppers were on the streets at seven p.m., when the fire was discovered, and the blaze was not considered under control until 9:30 p.m.

The buildings destroyed were of brick and wood construction, one and two stories high. Noting the seriousness of the fire, the local fire department sent calls for help to Savannah, Ga., and Jacksonville, Fla. A pumper from each of these towns made quick runs over the Coastal Highway and assisted the Brunswick firemen in saving the business section. A strong northeast wind was blowing.

The two out of town companies remained on the scene until early Christmas morning to be sure that all danger was over. The entire fire loss was placed at $300,000.

JOHN A. STULB.

New York to Erect Flushing Station—Commissioner John J. Dorman of the New York Fire Department is selecting a site in the Murray Hill section of Flushing on which to erect a new fire station.

Washington, D. C., May Erect New Station—Included in the 1931 District budget now before Congress is an appropriation of $150,000 for the erection of a new fire station in the vicinity of Thirteenth and K Streets. It will house five pieces of fire apparatus and the deputy chief's car.

FOUR ALARMS TURNED IN FOR SEVEN-STORY INDUSTRIAL FIRE

Blaze Started in Printing Plant and Spread Rapidly — Battalion Chief Nearly Trapped by Fire Door — Department Does Good Work

By WILLIAM E. PATTERSON

TWO firemen and a traffic policeman were injured and a Battalion Fire Chief was rescued from a perilous position, shortly after noon, on Thursday, November 20, when a spectacular four-alarm fire, resulting from a "delayed alarm," swept the top floors of the Arrott Power Building, a seven-story brick structure, in the downtown business district of Pittsburgh, Pa. Thousands of office employees and pedestrians during the noon rush hour gathered as fire apparatus came rushing from all directions.

The fire broke out in the plant of the C. H. Nevin Printing Company, located on the fifth floor of the structure. It was

Looking Toward Arrott Power Building After Fire Was Nearly Extinguished

caused by a boy employed in the printing plant cleaning a printing press with cotton waste, saturated with gasoline, which evidently ignited from a cigarette. In his excited condition, the boy dropped the burning waste and then kicked it into a pile of paper cuttings on the floor, which ignited and spread rapidly to all parts of the printing plant.

Hundreds of employees hurriedly vacated the burning building as the clouds of smoke spread from floor to floor, forgetting all about any efforts on their part to operate any of the private fire lines, attached to the standpipe on the various floors.

An employee on a floor below that of the printing plant, hearing the cry of "fire," had the presence of mind to reach a telephone and send in a "still alarm" to the Fire Department through the Central Fire Alarm Office.

Engine Company No. 18 located on Eighth Street, two blocks from the burning structure, was sent to the fire on the "Still Alarm" at 12:04 p.m. A fire alarm box was pulled at 12:05 p.m. by a police officer just as Engine 18 was leaving quarters. This was answered by Engine Companies Nos. 1, 19, 32 and 33, Truck Companies No. 1 and 3, Squad Company No. 1 and Water Tower Company No. 1 in command of Battalion Chief George P. Sparr of the First Battalion and Deputy Chief Frank G. Jones.

Upon the arrival of Engine Company No. 18 and the rest of the first alarm companies, the fire had made great headway and was rapidly extending to the upper floors. The fifth floor was involved and threatened to spread to adjoining and nearby buildings.

Knowing the hazardous condition of the burning building and adjoining structures, with only twenty-foot alleyways, Battalion Chief Sparr and Deputy Chief Jones, sent in three additional alarms as the flames gained headway, the second at 12:12 p.m., the third at 12:18 p.m., and the fourth alarm at 12:45 p.m. The four alarms, called to the scene, eighteen Engine Companies, three Truck Companies, one Emergency Squad Company and one Water Tower Company, with a manual fire fighting force of 123 men, including nineteen officers.

The second alarm was answered by Engine Companies Nos. 2, 3, 4, 40 and 46 and Truck Company No. 46 in command of Battalion Chief William H. Kuhlman of the Eighth Battalion and Richard L. Smith, Chief of Department; the third alarm by Engine Companies Nos. 7, 11, 41 and 42 in command of Battalion Chief John H. Frazier of the Fifth Battalion and the fourth alarm by Engine Companies Nos. 12, 5, 25 and 48 and Truck Company No. 25 in command of Battalion Chief William H. Davis of the Third Battalion.

Just as Engine Company No. 18 was entering the burning printing plant on the fifth floor with their line, a gas explosion of considerable force took place, caused by a burning pilot light beneath a linotype machine going out. Escaping gas accumulated in the linotype room and ignited as the flames swept this room.

Battalion Fire Chief George P. Sparr, of the First Battalion, had a narrow escape with his life, when he was trapped in the burning printing plant on the fifth floor while searching for an entrance for Engine Company No. 18, where they could attack the fire at close range. The men were following in the rear with their line, when a fusible link attached to a fire door between the staircase and the entrance to the burning printing plant, melted by the heat, allowed the door to close behind the chief. The chain to which the fusible link was attached, in some manner swinging up over the top of the door as it closed, jammed it shut so as it could not be opened.

Chief Sparr realizing he was trapped, groped his way in the smoke, picked up a printers galley, knocked on the heavy fire door and shouted for help.

Members of Engine Company No. 18, hearing the Chief's cries for help, battered the door down with axes and pulled the Chief out of the smoke filled room. He was nearly overcome by the dense smoke but remained on duty after being treated by Dr. Daniel E. Sable, Chief Surgeon of the Police and Fire Departments, who established an emergency hospital close to the burning structure.

An officer directing traffic at one of the most congested street intersections in the city escaped being killed, when the 1000-gallon pumper of Engine Company No. 12, trans-

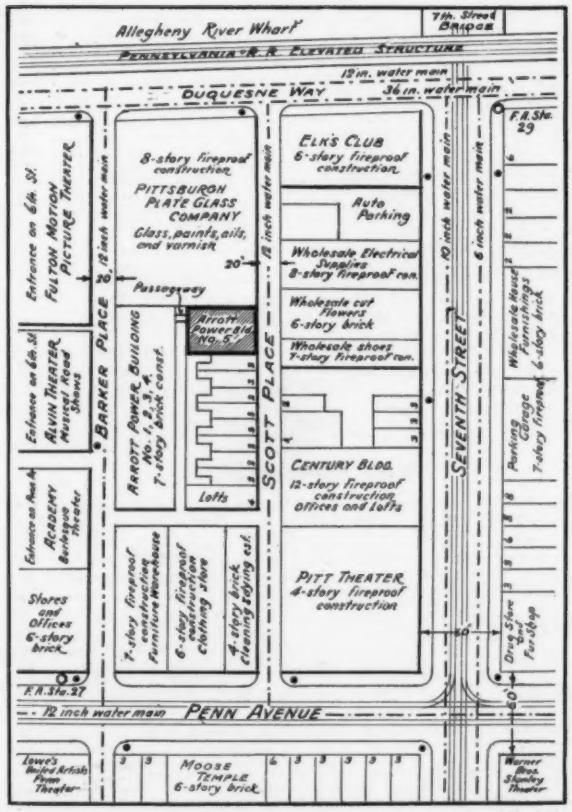


Diagram of District in Which Fire Developed

ferring to the quarters of Engine Company No. 30 on the third alarm, skidded on the asphalt street. The rear end of the heavy apparatus swung around like a whip and struck the officer. The policeman was rushed to a hospital.

In extinguishing the fire, fourteen high pressure fire streams and one hydrant stream, with shut-off nozzles and 1⅛-inch tips were used through 200 feet of 3-inch and 8,800 feet of 2½-inch hose, in addition to a number of small streams supplied through 350 feet of one-inch lead line hose. About 425 feet of ladders, including three aerial ladders were in service at the fire.

Efficient and quick work accomplished by the Emergency Squad Company with their salvage covers, practically prevented any loss from water to contents on the lower floors of the burning building. Thirty pieces of motor fire apparatus were called on the four alarms.

The burned building was a seven-story brick slow burning mill constructed power and loft building with wooden floors carried on heavy oak floor beams, supported at the walls with iron floor hangers and heavy oak columns in the center of the building. It was equipped with an elevator used for both freight and passenger service, located about fifteen feet from the main entrance of the buiding.

Newspaper editorial writers praised the good work of the firemen in stopping this fire under severe difficulties.

WHAT'S BURNING

THE following list includes fires of $25,000 loss and over in the United States and Canada, for the periods designated in the headings. These figures, compiled from telegraphic reports, are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they give an approximately correct view of the losses incurred. The figures represent loss in thousands of dollars.

Week Ending December 26	Loss in Thousands of Dollars
DOTHAN, ALA.—Presbyterian Church damaged	25
WELLSVILLE, OHIO—Business and apt. property of J. M. Turner	25
DONORA, PA.—Bldg. of American Steel & Wire Co.	40
MONTVILLE, N. J.—Rice's Hotel, Montville Main Rd.	25
MONROE, WIS.—C. H. Buehler & Co. garage destroyed	80
DOVER, PA.—Planing Mill of H. E. Quickel	40
PENSACOLA, FLA.—Jewish synagogue, adj. property	80
BROOKLYN, N. Y.—J. Mullins & Sons Furniture Store	125
LOWELL, MASS.—Congress Street Manufacturing plant	45
KITCHENER, ONT.—Plant of Art Furniture Co.	175
MEDIA, PA.—Plant of Media Concrete Products Co.	65
BELNIER, S. C.—Consolidated School bldg. destroyed	35
TRENTON, ONT.—King Street United Church destroyed	35
CLEVELAND, OHIO.—Bldg. occupied by Cleveland Overall Co.	80
JUNCTION CITY, ARK.—Several business establishments	45
NEW YORK CITY, N. Y.—Old Harlem Opera House damaged	65
UNIVERSAL, PA.—Moose Hall destroyed	40
ROCKAWAY, N. J.—Bldg. occupied by Rockaway Dept. Store	25
STIRLING, N. J.—Property owned by Carmine Tete destroyed	25
ELIZABETH, LA.—Edwards Hotel and adj. property	50
ANAHEIM, CALIF.—Whse. of Holly Sugar Co. destroyed	100
DUNKERTON, IA.—Stock barn of Geo. McNellis, 1 mi. south	50
MINNEAPOLIS, MINN.—Elevator of N. Dak.-Mont. Wheat Growers Assn.	100
BOSTON, MASS.—Seven-story brick bldg. destroyed	90
LOS ANGELES, CAL.—Bldgs. of Minnie Barton Training Home	45
PARIS, KY.—Kress 5, 10 and 25c store destroyed	55
BONHAM, TEX.—Bldg. occupied by dry goods store and tailoring shop	72
HOLLYWOOD, CAL.—Bank of America bldg. damaged	70
ABERDEEN, WASH.—Consolidated Plywood & Lumber Co. destroyed	35
PITTSBURG, CAL.—Redwood Mfg. Co. power house damaged	70
CHICAGO, ILL.—Main hangar at Pal-Waukee Airport and 17 planes	155

Week Ending January 2	
BRUNSWICK, GA.—Business block destroyed	250
BRISBANE, N. DAK.—Store of Bodie Bros. destroyed	25
BRANDTFORD, ONT.—Two stores destroyed	125
CINCINNATI, OHIO—Property occupied by Thieman Bros.	45
GRUNDRY CENTER, IOWA—Garage of Herman Iglints	65
BROOKHAVEN, MISS.—Several business establishments destroyed	80
STOCKTON, CAL.—Barge of Union Oil Co. destroyed	150
RICE, VA.—High school building destroyed	25
RANTOUL, ILL.—Army Aviation Radio School, Chanute Field	400
VOLGA, S. DAK.—Lutheran Church destroyed	35
BALTIMORE, MD.—Property occupied by Robinson & Wirtz Co.	65
M'KNIGHT VILLAGE, MO.—Home of David Israel destroyed	65
OTTAWA, ONT.—St. Joseph's Catholic Church destroyed	350
CRISFIELD, MD.—Mariners Methodist Church destroyed	35
HARFORD, PA.—Property of Wilmarth Dairy Co.	80
NEW ORLEANS, LA.—Several bldgs. of South Port Corp.	40
HIGH POINT, N. C.—W. W. Parker drug store damaged	80
GRAHAM, KY.—Commissary of W. G. Duncan Coal Co. destroyed	60
MERRICKVILLE, ONT.—Watchhorn Woolen Mills destroyed	30
BOSSIER PARISH, LA.—Whse. of G. T. Shaw destroyed	35
STAMPS, ARK.—Several business establishments	40
CINCINNATI, OHIO—Property of Union Reduction Co.	25
ROME, GA.—Department store of Esserman & Co. damaged	65
DALLAS, TEX.—Apartment bldg. at 1505 Forest Ave.	25
COCHRANE, ONT.—Queen's Hotel destroyed	65
CAMDEN, ARK.—Plant of Camden Baking Co., adj. property	25
JOHNSON CITY, TENN.—Central Baptist Church damaged	70
McALESTER, OKLA.—Palace theatre, adj. property	80
HARDY, ARK.—Wahpeton Inn, owned by D. H. Hudson	35
FLAGSTAFF, ARIZ.—Garage of Arizona Lumber & Timber Co.	50
VANCOUVER, B. C.—Bldg. of Wilson Shoe Co. damaged	45
MONROE, LA.—Several business establishments	45
BUFORD, GA.—White bldg., adj. property damaged	25
CINCINNATI, OHIO—Home of F. A. Hoffman, Egan Hilll Dr.	25
JERSEY CITY, N. J.—Greenville Freight Terminal P.R.R.	80

New York Awards Fireboat Contract

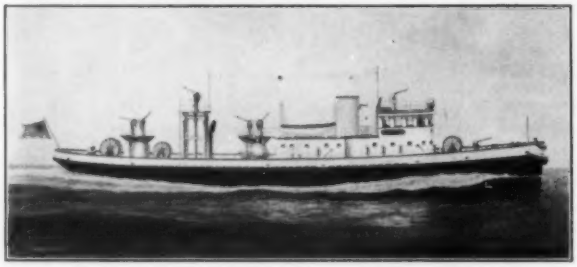
A contract for the construction of a new flame-proof fireboat, capable of throwing 16,000 gallons of water per minute, was awarded to the Todd Shipbuilding & Drydock Company of Brooklyn by Commissioner John J. Dorman. Henry J. Gielow, Inc., were the naval architects selected to design the boat and supervise its building.

The new marine fire fighter will be 130 feet long, will have a beam of 26 feet, a draft of 7½ feet and will be powered by five main gasoline engines, developing a total of 2,740 horsepower. The engines will operate upon two electric motors generating 1,165 horsepower which will drive the craft at 18 miles per hour.

Placing of the contract at this time will necessitate the expenditure of $582,500 and will furnish direct and indirect employment to 2,000 men until the middle of next summer.

According to the architect's plan, water will be drawn through two intakes on either side of the fire boat by means of four centrifugal pumps which will discharge 64 tons per minute through any or all of twenty nozzles on the craft. In addition, the boat will carry 4,000 pounds of foam powders for combatting oil and gasoline fires.

Fuel consumption of the motors is estimated at 50 gallons per hour per engine or a total of 250 gallons per hour for



Naval Architect's Sketch of the New Fireboat for New York City

the battery of five power units. The gasoline will be carried in two 3,025-gallon tanks, one forward and one aft. The tanks will be of a non-explosive type, protected by a system with no air space above the gasoline level. In addition, the tanks will have baffle plates to resist or check the swashing of the fuel and the containers will be guarded by encasements which, in turn, will be protected by a carbon dioxide fire-fighting system.

One auxiliary power boat, equipped with a fire pump of 150 gallons capacity for use in combatting fire under piers and wharves will be carried aboard the craft.

A special arrangement of reversible fans aboard the craft will enable suction of fresh air into the crew's quarters or forcing of air out of the interior so that fire and smoke will not be drawn into the boat. Other features will be steam heat aboard, generated by fuel oil burning boilers, lighting supplied by connections at the docks, and magnetic clutches between the engines and pumps so that the same power units can be used simultaneously for propelling the craft and forcing the water through the nozzles.

The boat will also be equipped with wireless telephone and telegraph, and a receiving and sending set to keep in constant communication with the municipal broadcasting station, WNYC.

Junction City, Ore., to Erect Station—Junction City, Ore., is planning the construction of a new fire station to be completed in about sixty days.

Visitors Inspect Scranton Fire Alarm—A number of city officials of Mt. Vernon, N. Y., visited Scranton, Pa., to inspect the fire alarm system. Chief Edmund B. Lewis acted as host to the visitors.

FIRE PREVENTION ORDINANCE FOR CITIES AND TOWNS

It Establishes Bureau of Fire Prevention—Prescribes Regulations for Hazardous Materials and Processes

(*Continued from last issue*)

THE following Fire Prevention Ordinance has been prepared by Engineers of the National Board of Fire Underwriters and its recommended by that organization for adoption by cities and towns. While it is not expected that in all cases smaller cities will find need for an ordinance of such length, it is recommended by the Board that a complete set of regulations be adopted in all cases, for even though there may be no immediate need of regulation of a particular hazard, every growing community is sure to have these hazards introduced sooner or later, and it is better to be prepared for them than to develop unrestricted and then try to regulate them. The ordinance will be published in its entirety serially in FIRE ENGINEERING.

Part 10. The Application of Flammable Finishes

General Requirements

1001. *Definition.*

The term "finishing shop" shall mean a building or part thereof used for the application of flammable finishes by means of spraying or dipping.

1002. *Permits.*

A permit shall be required for any finishing shop using more than 1 gallon of material on any working day, or storing in connection with the use thereof, more than 5 gallons of flammable finish.

1003. *Location.*

Finishing shops in buildings of wooden construction or in buildings used in whole or in part for human habitation or in connection with stores shall be suitably cut off by fire partitions or fire walls from other portions of the building, and shall be equipped with an automatic sprinkler system.

1004. *Storage of Flammable Finishes in Finishing Shops.*

The storage of flammable finishes inside of finishing shops shall be restricted as follows:

(a) Not to exceed 20 gallons, with no container exceeding 1 gallon in capacity, may be stored on a substantial shelf at least 4 feet above the floor and with suitable guard strips to prevent contains from falling.

(b) Not over 50 gallons with no container exceeding 5 gallons capacity may be stored in a cabinet, entirely enclosed and made of suitably stiffened sheet iron of at least 18 U. S. gauge in thickness, and double walled with 1 1-2-inch air space or equivalent construction. Doors shall be of construction equivalent to the walls of the cabinets, be provided with 3-point lock, fit closely, and be kept closed when not in use. Door sills shall be raised at least 2 inches above the bottom of the cabinet.

(c) Quantities in excess of those given under (a) and (b) shall be suitable storage and mixing rooms as specified in Section 915.

1005. *Mixing.*

(a) Mixing operations shall be carried on only in storage rooms as outlined in Section 915 or in special mixing rooms of equivalent construction; provided that containers of a total capacity not exceeding 2 gallons may be opened and their contents mixed in the finishing room.

(b) Receptacles containing flammable finishes shall be kept tightly covered.

1006. *Containers.*

(a) All containers of flammable finishes shall be of metal suitably constructed to prevent leakage; I. C. C. containers shall be acceptable for storage.

(b) Containers used as part of the spraying outfit shall be of metal, except that glass containers not exceeding 1 pint capacity; also containers with glass inner linings of not more than 1 gallon capacity (protected with a metal holder or guard permanently fixed around the container) may be used.

1007. *Ventilation.*

(a) Unless suitable ventilated spray booths are used for all finishing operations, finishing rooms shall be continuously ventilated during operation. Ventilation shall be such as to effect at least one complete change of air every three minutes

(b) Exhaust outlets in finishing rooms shall be located not over 5 feet above the floor and shall discharge directly outside of building. Stacks and ducts shall be of substantial construction with joints riveted and soldered or otherwise made tight. They shall extend as directly as possible to the outside air and preferably not through other rooms. They shall not be connected to other ventilating or collecting systems.

1008. *Lighting and Electrical Equipment.*

Artificial lighting shall be by electricity only. All electrical wiring and equipment shall be in accord with the National Electrical Code for Hazardous Locations.

1009. *Housekeeping.*

(a) Finishing shops shall be kept free from all unnecessary combustible materials and refuse.

(b) Floors of finishing shops, drain boards and the interior of spray booths shall be thoroughly cleaned at least once a day and all fans, ducts, side walls and ceiling kept as clean as may be practicable at all times. In cleaning, care shall be taken to use implements which will not create sparks. Wherever practicable surfaces to be cleaned shall be sprayed or otherwise wet down with water before cleaning. Sweepings or deposits from spray booths or rooms, ducts or stacks shall be immediately removed from the building and safely disposed of.

(c) Metal waste cans with self-closing covers shall be provided for all waste and rags which have come in contact with paints, varnishes, and other finishing compounds.

1010. *Open Flames and Heating.*

No open flame shall be permitted in storage or mixing rooms, storage cabinets, finishing rooms, or spray booths. For heating purposes indirect systems only, such as steam, hot air or hot water, shall be used.

1011. *Grounding.*

All metal spray booths, dip tanks, bake ovens, mixers, filters, pumps, motors and shafting shall be electrically grounded in an effective manner.

1012. *Fire Extinguishing Equipment.*

The Chief of the Bureau of Fire Prevention shall require the installation of 2½-gallon soda and acid or foam type extinguishers or other fire extinguishing appliances as may be deemed necessary in finishing rooms, or near storage cabinets and spray booths.

1013. *Smoking.*

Smoking shall be prohibited in any room used for the storage of flammable finishes and in any finishing room. Suitable "NO SMOKING" signs shall be prominently displayed.

Spraying

1014. (a) All spraying shall be performed in a spray room or spray booth as specified below or its equivalent.

(b) If spraying is performed in a room not provided with spray booths as herein provided, such spray room shall be separated from the remainder of the building by partitions of fire-resistive construction equivalent to incombustible wallboard on wooden studding, cement or gypsum plaster on metal lath on wooden studding or wooden studding covered on both sides with sheet iron. Doors in openings in spray room partition shall be equal in fire resistance to partition and shall be of the self-closing type or so installed as to close automatically in case of fire.

(c) Spray booths shall be of metal or other non-combustible material and of ample size to accommodate the object to be sprayed.

(d) Spray booths shall be provided with exhaust systems of sufficient capacity to adequately remove vapors or residues. Supply of air entering the room where the spray booths are located shall be substantially equivalent to the exhaust capacity provided. Each spray booth shall have an independent stack or vent, except that not more than 3 booths each with less than 6 square feet frontal area may connect to one stack. They shall be properly supported and shall have at least a 6-inch clearance where passing through wooden floors, roofs, partitions, or in close proximity to them or other combustible material.

(e) Ventilating fans in spray rooms and booths shall be kept in continuous operation while spraying is being carried on and shall not be stopped until all flammable vapors have been removed.

(*To be continued*)

The Round Table

(*Continued from page* 14)

tricts. We have obtained wonderful results because of the rules established which have been effective since 1926.

William J. Lutz, Chief, Wilmington, Del.: A dry cleaning plant can not be opened in Wilmington without first obtaining a permit from the office of the Bureau of Fire.

Of the many cleaning establishments in this city, it is very pleasing to state that no cleaning or dyeing is done in these stores. The cleaning is all done at one central plant.

The cleaners and dyers here have a very efficient organization that operates and cooperates with the Fire Bureau along the lines of Fire Prevention and Fire Protection.

C. W. Carliss, Chief, Lagrange, Ga.: We have no special ordinance except that the work be carried on in fireproof buildings located in the inner fire lines. We inspect these places often and encourage them to have some foam protection.

Robert Jones, Chief, Chattanooga, Tenn.: The building must be of fireproof construction and not more than two stories high, with no sleeping quarters in the building which must be properly drained and ventilated. All heating shall be done with hot water and steam. The dry cleaning room shall be separated from boiler and electric motors by fireproof walls. There must be a separate entrance. Cleaning must be done with approved solvents.

W. C. Shepard, Chief, Pittsfield, Mass.: All cities and towns are governed by state rules and regulations in so far as dry cleaning establishments are concerned. There are no special municipal regulations.

Frank Clark, Chief, Belvidere, Ill.: We do not have a city ordinance on dry cleaning. When the deputy state fire marshal comes here and he finds some violations of state regulations, he orders that they be corrected.

T. W. Alleman, Chief, Altoona, Pa.: No person, association or corporation shall erect, maintain or operate any dry cleaning business without first obtaining approval from the Bureau of Fire Protection. Application for such permit must be accompanied with plans and specifications showing location of all machinery and equipment of the establishment. Type of material, construction, venting exhaust provisions, heating, lighting, etc., must all conform to law governing same.

No direct sewer connections with dry cleaning, dyeing, tumbler, drying rooms or structures are permitted.

Fire extinguishers of an approved type shall be provided for each two hundred square feet of floor space, or when separate rooms are maintained, one extinguisher for each room. Steam pipes installed for the extinguishment of fire in such structures must be separate from the heating system. Steam supply for such pipes shall be continually available for service while the plant is in operation, and shall be sufficient to completely fill the room space in less than one minute. An approved system, using a fire deterrent chemical or gas, may be installed in lieu of a steam extinguishing system.

E. E. Cureton, Chief, Owensboro, Ky.: Below is given portions of our Standard of Safety which has been made a city ordinance. It is the duty of the fire chief and his inspectors to see that the provisions of such are enforced.

The chief of the fire department is empowered and authorized to enter upon and into any premises, building or structure at any and all reasonable times for the purpose of examining and inspecting the same to ascertain the condition thereof with regard to the present arrangement or deposit of any article, material or substance, which may have a tendency to create danger of or from fire in said premises. Also with regard to the condition, size, arrangement and efficiency of any and all appliances for protection against fire. If appliances for protection against fire are found to be lacking or insufficient in size, the chief may recommend such equipment as may be found necessary and within reason.

Deputies may be appointed to carry out inspections and report in writing the results of such work to the Chief of the Department. If after being notified, the occupant or owner of materials or property upon which violations have been found and not removed, said party shall upon conviction be fined a sum not to exceed one hundred dollars and shall be further fined the sum of five dollars for each day said violation shall continue.

E. C. Haskin, Chief, Highland Park, Ill.: In our city it is unlawful for any person, firm or corporation to engage in or carry on within the city limits the business of dry cleaning in which gasoline, naptha, benzine or other volatile inflammable fluids are used to clean or renovate any clothing or article or wearing apparel or fabric of any kind without first obtaining a license.

Application for license must be made in writing, the fee of which is $25 per year.

Buildings to be used for dry cleaning purposes must be of fireproof construction and not more than two stories in height. The first story of such building shall be at least six inches higher than the surface of the ground surrounding such building and so laid that there shall be no space underneath same. There shall be no openings through the floors except the stairway leading from the first to the second floor which must be enclosed with walls of incombustible material, and lead directly to the outside of the building without any doors or openings leading into the dry cleaning room. Such building shall be detached and not used for any other purpose than that of dry cleaning.

Exhaust fans shall be located in the air conduit whose inlet openings shall be at or near the floor level in the wall furthest away from any other building or structure. Such establishments must be equipped with a high pressure steam boiler of sufficient capacity to provide for thoroughly flooding the dry cleaning and drying rooms with steam in case of fire. Each room in said building shall be equipped with a 1¼-inch line connecting to the supply line. Whenever steam power shall be used for operation of any machinery in any such dry cleaning establishment, the boiler generating such power shall be located in a separate building and so located that the line of travel for gases between the boiler and the nearest opening into the cleaning and drying rooms shall be at least twenty feet.

All gasoline used in any such building shall be conveyed to and from such building through closed metal piping; no open troughs shall be permitted. No piping or connection of any description is permitted whereby any of the oils or fluids used on the premises may flow from the cleaning room into any public or private sewer, drain, catch basin or pit. All machinery must be grounded with No. 14 copper wire to a permanent moisture.

Napoleon Belfy, Chief, Muskegon, Mich.: The following cover dry cleaning establishments in Muskegon: No dry cleaning establishment shall be installed in Michigan except in a separate building or section cut off by a fire wall constructed of brick, stone or concrete. Any openings in this wall shall be protected by standard fire doors, curtains or shutters. Such building or section is not to be over one story or sixteen feet in height, and must be constructed without basement or other opening beneath floor. All doors shall have raised sills at least six inches above the highest point of the floor. Such building to be well ventilated at or near the floor, and no fire or lights permitted, except electric light, installed in accordance with the National Electric Code.

Where gasoline or naphtha is used for dry cleaning in quantities of more than five gallons, same shall be stored in approved underground tanks and handled through approved apparatus.

Skylights shall be provided, and shall be constructed of metal frame and sash and shall be provided with wired glass. The sash shall be of the pivot type and so hung as to readily swing out in case of an explosion; or in lieu thereof, the skylights may be constructed of metal frame and sash and be provided with plain glass if the opening in the roof is protected on the underside by fire doors held open by chains with fusible links and so balanced that the doors will close automatically in case of fire, and in addition a wire screen provided above the skylights.

John A. Grogg, Chief, Tiffin, Ohio: No building can be used for dry cleaning unless it be constructed of brick twelve inches thick, or reinforced concrete of the same thickness, or stone sixteen inches thick. Floor space of such building is not to exceed 2,000 feet and not over sixteen feet in height. No connections with city sewers are permitted. A well having a capacity twice that of the fluid employed about the plant is to be constructed of brick and cement with a metal cover and buried at least three feet below the floor level of the building which it serves. Lighting is to be controlled by keyless sockets,

all fusing switches to be located on outside of building.

As a means of fire extinguishment, buildings must be equipped with not less than two-inch steam pipes connected to give an equal distribution of steam and provided with perforations or jets of one quarter inch in diameter equally spaced so that there is one opening for each twenty feet of floor space. A quick lever valve shall be located on the outside of the building so that prompt accessibility for operation in case of fire may be had.

All equipment of such plants, electric wiring, etc., must be properly grounded and be inspected by the Chief of Fire Department before such is put into service.

M. J. Corrigan, Chief Fire Marshal, Chicago, Ill.: No person, firm or corporation shall advertise as dry cleaners until such party shall have made application to the State Fire Marshal for permission to engage in such business. Plans and specifications, giving full details as to location, construction and operation thereof must accompany the application.

Dry cleaning and dyeing plants should preferably be located in outlying sparsely built sections. The dry cleaning buildings shall be not closer than ten feet to the line of adjoining property, except when the exposing wall of the building is of standard brick or equivalent construction and without openings, it may be located on the property line but in no case shall more than two sides have blank walls.

Height shall be one story, without attic, concealed roof space, basement or pits. Walls shall be brick, not less than twelve inches thick or equivalent construction. Two exits shall be provided remote from each other and leading directly to the outside of the building. Wired glass for windows, if used, shall be in sash so hung that they will readily swing out in case of an explosion. Such sash shall not be secured. Glass area in wall shall be so located as to vent the force of any explosion in the direction or directions of least exposure.

Every dry cleaning and drying room shall be equipped with an approved mechanical ventilating system. Such systems of ventilation shall have sufficient capacity to insure a complete and continuous change of air once every three minutes.

Heating shall be done by steam or hot water. No steam boilers, furnace or exposed fire, nor any electric dynamo nor motor nor other spark emitting device shall be allowed in any washing, drying or distilling room, or in line with vapor travel therefrom, except electric motors and switches of such type as required by the provisions of the National Electric Code dealing with extra hazardous locations.

The handling of solvents from the storage tank, through the various machines and back to the settling and clear solvent tanks shall be through closed circuits of piping installed in compliance with standards specified.

All dry cleaning to be carried on in closed machines, which shall be fluid tight. No dry cleaning liquid shall be settled in any open or unprotected vessel or tank. All piping and all metallic parts of each machine shall be properly grounded by at least No. 10 copper insulated wire to a water pipe or other grounded devices.

The scouring or brushing table or scrubbing tub shall be so located as to ensure thorough and effective disposal of vapors through the ventilating system. Flammable solvents used in connection with spotting operations shall be limited to one quart and shall be stored in and applied from an approved safety can.

Each dry cleaning or dyeing room shall be equipped with a steam extinguishing system connected directly with the boiler or main steam supply line. Such systems shall be of sufficient capacity to fill completely the rooms or spaces in such rooms in less than one minute. An adequate steam supply for extinguishing purpose shall be continually available while the plant is in operation. Where such an extinguishing agent is not available an approved system using a fire retardant chemical or gas may be used. Approved extinguishing devices of a type suitable for use on oil fires shall also be provided. These may be hand extinguishers and, if necessary, wheeled extinguishers, depending upon the size of the plant. In no case shall there be less than one foam type extinguisher of the 2½-gallon size at each entrance.

W. G. Lutkey, Chief, Oakland, Cal.: No person, firm or corporation shall alter a building for the establishment of a dry cleaning business, conduct or operate same, or store or keep therein any volatile or inflammable product without first making application and obtaining a license from the state fire marshal.

Four blueprints of the proposed establishment must accompany the application.

A charge of $40 per annum is stipulated as the license fee, and failure to pay renewal fee on or before the first day of January of each and every year of operation shall be considered a violation of the act governing such establishments.

The Department of Industrial Relations, which grants licenses to dry cleaning concerns, has the power and authority to prescribe rules and regulations governing construction, equipment, maintenance and operation of clothes cleaning establishments deemed necessary to protect life and property against fire menace.

Upon conviction of violation of the act governing dry cleaning establishments, the offending party shall be fined $200 or imprisonment for thirty days, or both.

Hazardous buildings not to be more than one story in height, and the height of rooms therein to be not less than 10 feet in height.

A hazardous building shall be provided with a power-driven fan exhaust system, designed, installed and operated to produce a complete change of air in each room of such building every three minutes, which shall be kept in continuous operation while any portion of clothes cleaning establishment housed in a hazardous building is being operated. Approved wall vents, designed, and constructed in accordance with specifications must be provided in the exterior walls, totaling one vent for each six lineal feet of the total external dimensions of the building, less one vent for each door opening therein, and shall be so located as to provide an ingress of air at the corners of each hazardous room. There shall, however, be not less than two such vents in each hazardous room.

No heating device, other than hot water or steam shall be installed in such a building. No artificial lighting of any kind other than electricity, nor any open light, flame or fire, shall be installed or used.

Henry A. Fox, Chief, Boston, Mass.: Application for permit must be made to the Chief of the District Police and will not be granted until a license has been obtained from the mayor and aldermen of a city, or the selectmen of a town. Each application must be accompanied by a plan of the premises.

No building shall be used for dry cleaning or dyeing which is situated within fifty feet of the nearest wall of any building occupied as a hotel exceeding two stories in height, hospital, school, theatre or other place of public amusement or assembly.

Dry cleaning establishments must not be more than one story in height, not less than twenty feet from any other building, nor in excess of two thousand square feet of floor space and constructed according to specifications.

Windows are to be wired glass, and so arranged that they may be opened from both inside and outside. There shall be at least two independent exits, as far apart as may be, fitted with standard automatic fire doors, opening outwards, and without latches.

Ventilating apertures leading to the open air shall be constructed in the side wall at the floor level not more than eight feet apart.

There shall be four fire buckets filled with sand and provided with hand scoops, to be used for fire extinguishing purposes only. A quantity of sand shall also be kept on the floor for absorbing waste oils. There shall be one chemical fire extinguisher for inflammable liquids for each five hundred square feet of floor space or fraction thereof.

Volatile inflammable liquid used in connection with dry cleaning shall be stored in tanks placed underground; the tops of such tanks are to be not less than two feet below the surface of the ground, and constructed according to specifications.

J. H. Espey, Chief, Elmira, N. Y.: Elmira has no ordinance of its own covering dry cleaning establishments, but enforces regulations as contained in Bulletin 29 of the New York State Department of Labor which are rigidly adhered to.

E. V. Stone, Chief, Ludlow, Mass.: We have no dry cleaning establishments located in our town. Such establishments are, however, controlled and regulated by rules of the State Department of Public Safety.

FIRE DEPARTMENT ACTIVITIES

Apparatus Delivered to Peekskill, N. Y.—A Mack emergency squad wagon has been delivered to Peekskill, N. Y.

Cassapolis, Mich., May Buy Pumper—Cassopolis, Mich., is considering the purchase of a pumper.

Monona, Ia., to Acquire Apparatus—Monona, Ia., has contracted for W. S. Nott Company apparatus.

Tustin, Cal., to Have New Fire House—Construction has started on a fire station for Tustin, Cal.

Henry State Fire Marshal of Ohio—Frank G. Henry has been appointed State Fire Marshal of Ohio.

Lincoln, Neb., to Buy Ladder Truck—Bids have been received by Lincoln, Neb., for supplying a new ladder truck.

Youngsville, N. Y., Has New Apparatus—New fire apparatus has been delivered to Youngsville, N. Y.

Peekskill, N. Y., Has Fire Patrol Apparatus—Peekskill has placed its new fire patrol apparatus in service.

Fire House Cornerstone Placed—The cornerstone has been laid for the new fire station being erected in Mineola, N. Y.

Huntington Park, Cal., to Have New House—Construction has started on a new fire station for Huntington Park, Cal.

N. Tarrytown, N. Y., Considers Purchase—The trustees of North Tarrytown, N. Y., are considering the purchase of a ladder truck.

Clarion, Ia., to Have Community Apparatus—Clarion, Ia., is expecting the delivery of community fire apparatus for the protection of rural property.

Logan, Utah, Buys Fire Apparatus—Logan, Utah, has purchased light fire apparatus to be delivered the end of January.

Wauwatosa, Wis., to Have Fire Alarm—Work has been started in Wauwatosa, Wis., on a fire alarm system consisting of twenty-four boxes.

Ex-Chief of Kankakee, Ill., Dead—Gottlieb H. Hinderer, formerly Fire Chief of the old volunteer Fire Department of Kankakee, died at his home at the age of sixty-three.

Zanesville, O., to Open New Station—Shortly after the first of the year a new fire station will be opened in Zanesville, Ohio.

Pumpers Delivered to Devil's Lake, N. D.—Two Mack pumpers—a 600-gallon and a 500-gallon—have been delivered to Devil's Lake, N. D.

Fire House Opened in Middletown, O.—A new fire station has been opened on Yankee Road and Young Street, Middletown, Ohio.

Absecon, N. J., Delays Apparatus Bids—Absecon, N. J., has indefinitely postponed action on the purchase of fire apparatus.

Pittsfield, Mass., Buys Pumper—A 1,000-gallon Mack pumper equipped with a 100-gallon booster tank has been purchased by Pittsfield, Mass.

Legion Post Raises Fund for Apparatus—The American Legion post in Audubon, Ia., have raised an amount sufficient for the purchase of fire apparatus.

Portsmouth, Ia., Buys Apparatus—Portsmouth, Ia., has purchased fire apparatus. A number of farmers in the vicinity contributed to the fund.

Station Opened in Mauch Chunk—A new fire station has been formally opened in Mauch Chunk, Pa. A number of nearby fire companies participated in the ceremonies.

Pumper Donated to Sabraton, W. Va.—A 350-gallon pumper has been presented to Sabraton, W. Va., by a former prominent citizen of the community.

Niles Reduces Department Personnel—An ordinance has been passed in Niles, Ohio, for reducing the personnel of the Fire Department by two men.

Woodstock, O., Buys Apparatus—Woodstock, Ohio, has voted to purchase Howe fire apparatus equipped with chemical tanks.

Wheeling, W. Va., to Erect Stations—Wheeling, W. Va., is to erect two new fire stations. One house will be erected at Edgewood and the other at Seventeenth and Eoff Streets.

Dallas Center, Ia., Orders Apparatus—Dallas Center, Ia., has ordered Boyer fire apparatus. Half of the purchase price has been paid by farmers.

Salt Lake City May Have More Firemen—Included in the 1931 budget of Salt Lake, Utah, is provision for ten more men for the Fire Department.

Port Matilda, Pa., to Buy Apparatus—Firemen of Port Matilda, Pa., are to purchase a pumper equipped with a chemical truck.

E. Hartford Awaits Delivery of Apparatus—East Hartford, N. Y., is expecting the delivery of a 1,000-gallon Mack pumper.

Port Matilda, Pa., Buys Fire Apparatus—Port Matilda, Pa., has purchased a 300-gallon pumper equipped with a 35-gallon chemical tank and small fire extinguishers.

Palestine, Tex., to Erect Fire Station—Bids have been invited in Palestine, Tex., for the erection of a new fire station.

New Station Opened in Mansfield, Mass.—A new fire station was opened in Mansfield, Mass. There was a public program in the afternoon of the opening day, and in the evening the department held its annual banquet.

Work Started on Warren, O., Station—Contracts have been awarded for the construction of a new fire station in the east side section of Warren, Ohio. Local labor is to be employed at the prevailing wage scale.

Fire Company Formed in Graysville, Pa.—A fire company has been organized in the rural community of Graysville, Pa. Recently, within less than one week, the municipality was threatened by two fires.

Fire House Destroyed—Apparatus Saved—Fire believed to have been caused by defective wiring badly damaged the two-story fire station at McAdoo, Pa. The fire apparatus was removed in time.

San Leandro Adopts New Fire Rules—The council of San Leandro, Cal., has adopted new regulations for the management of the Fire Department. The department will consist of a chief, assistant chief and secretary, and fifteen volunteer firemen.

New Apparatus Delivered to San Benito, Tex.—A pumper and a ladder truck have been delivered to San Benito, Tex. The new equipment was considered necessary by the state fire insurance commission because of the growth in local population.

Sparta, Wis., Firemen May Get Insurance—Plans are under way in Sparta, Wis., whereby volunteer firemen will be insured against injury during actual fire service. Firemen are now covered by compensation insurance based on a percentage of their pay.

Brea, Cal., to Receive Forestry Equipment—Announcement has been made that one of the new state forestry fire prevention trucks will be assigned to Brea, Cal. The apparatus will be available for call in their district outside of the cities.

Morris, Ill., Uses New Clean-Up Plan—The Chamber of Commerce of Morris, Ill., has raised a fund for employing some of the unemployed. The men are used to remove rubbish, boxes and packing material in the business section. The plan has been endorsed by Fire Marshal Legreid.

Hall, N. Y., Orders New Apparatus—Hall, N. Y., has placed an order for a 300-gallon pumper equipped with a 150-gallon booster tank and chemical equipment. A Chevrolet chassis was also purchased and the present chemical equipment was mounted on this truck. The fire district includes a two-mile radius.

Canonsburg, Pa., to Furnish Fire Protection—A contract has been signed whereby two fire companies in Canonsburg, Pa., will furnish fire protection to the five outlying townships. Under the plan which will cover a three month's period, each township will pay $25 for the service which will be divided equally by the two fire companies.

Fire Apparatus Attached in Law Suit—Contending that the town owed him money for services rendered, a former Recorder in Pine Grove, W. Va., sued and had the town's fire apparatus attached. The town contends that the fire apparatus was purchased by private subscription and not with town funds, and therefore can not be attached.

The OPERATING THREAD of the MATHEWS MODERNIZED HYDRANT

Reg. U. S. Patent Office

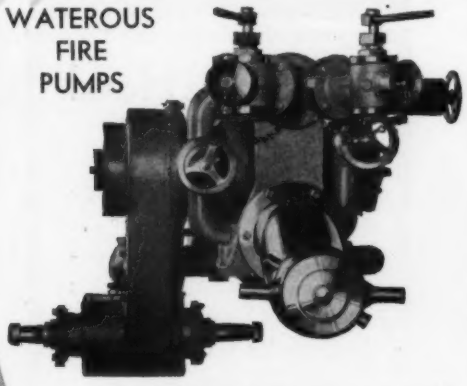
Is Sealed
No Moisture Can Reach It

NO frozen threads—no threads stuck or destroyed by rust—because the operating thread is effectually sealed against water or moisture from above or below. The bronze revolving nut is protected from above by the malleable iron shield operating nut—and from below by the stuffing box plate which is cast as a part of the nozzle section. The packing is held in place by a bronze packing nut, and the stem is bronze bushed where it passes through the packing. The packing can be tightened or replaced without shutting off the water. "And another thing"—a broken Mathews Hydrant can be replaced in a few minutes without digging or breaking the pavement. The completely revolving head enables nozzles to be faced in any direction—easily.

Send for interesting descriptive booklet.

R. D. WOOD & CO.
In business continuously since 1803
400 Chestnut St. Philadelphia
CAST IRON PIPE AND FITTINGS
SAND SPUN (centrifugally cast) and PIT CAST
Reg. U. S. Pat. Off. GATE VALVES

WATEROUS FIRE PUMPS



Dependability has been an inbuilt quality in the Waterous Rotary Pump for nearly half a century. The result has been that the sale of this pump has steadily increased. Latest catalog upon request.

Waterous Dependable

WATEROUS COMPANY
Saint Paul, Minnesota

WATEROUS dependable

Too late to be saved!

This fire reached uncontrollable heights before the fire department had opportunity to fight it.

A.D.T. Promptness Prevents "Delayed Alarm"

A.D.T. Central Station operators constantly check fire alarm, watchman and sprinkler signals.

To keep small fires from spreading requires prompt action—quick transmission of fire alarm signals, prompt response of the fire department.

A.D.T. Watchman Supervisory and Fire Alarm Systems operate to eliminate costly waste of time in summoning aid the instant fire is discovered. Through A.D.T. Central Stations fire departments receive prompt notification of fire—Prompt response is assured and fire losses are held to a minimum.

A.D.T. Systems operate through A.D.T. Central Stations located in principal cities throughout the United States. To promote greater fire fighting efficiency, recommend A.D.T. Protection, listed as "Standard" by Underwriters.

A.D.T. SYSTEM

CONTROLLED COMPANIES OF
AMERICAN DISTRICT TELEGRAPH COMPANY
155 SIXTH AVENUE · NEW YORK N.Y.

1963

COOPER ELECTRO-PNEUMATIC ALARM

In use for Years

Unlimited life

Nothing to get out of order

Powerful—Reliable—Instantaneous

Operates on only 1/10 amount of air required by whistles. Quickest device for coding. May be connected to present system and will operate if power is temporarily off. Produces a powerful and distinct sound audible for miles.

Manufactured by

CLARK COOPER

153-159 Jefferson St. PHILADELPHIA

BRAXMAR BADGES

Standard Over Fifty Years

OFFICIAL BADGE

Made in 14K Gold and Rolled Gold only

C. G. BRAXMAR CO.

242 West 55th St., New York

Send for NEW catalog!

Saves time - *and costly hose*

No. 1. (Capacity 3 to 7 tons; weight, each, 72 lbs.)

No. 2. (Capacity 3 to 12 tons; weight, each, 118 lbs.)

Complete information and Prices on request.

It's often necessary to move apparatus at a fire. Automobile traffic hates to be held up by a line of hose stretched across the right of way.

Why ruin your hose by driving over it? Or waste valuable time cutting off and disconnecting?

The Wausau Protector is a big time and money saver—easy to handle and carry. Order a set today, or write us for particulars.

Wausau Fire Hose Protector Co.

1520 Harmon Place, Minneapolis, Minn.

Novo Acid Jars & Holders

of every description stronger than lead and non-corrosive. Used by departments throughout the country.

Chemical Tanks and Lally Quick Opening and Self-packing Top for Chemical Tanks

Lally Improved Fire Hose Couplings, Fire Extinguishers and Charges, Fire Hose and Fire Department Supplies in General

Send for Complete Catalog

LALLY FIRE APPLIANCE CO.

Wilmington Brass Co., Wilmington, Del.

Quick-Acting Reliable

Anderson-Hale Improved

FIRE STATION DOOR OPENERS

Over 1,200 sets of Anderson-Hale Fire Station Door Openers are in successful use. They provide simple, durable, quick-acting doors that open inward. No obstruction to sidewalk. Attractive in appearance, cannot sag, closes tight, excludes cold, gives clear opening.

Opens from driver's seat or from floor. Many repeat orders from users.

Write for complete information.

The Anderson Coupling & Fire Supply Co.

Mfrs. Motor Fire Equipment and Fire Supplies

Kansas City, Kansas

The Home Hotel of New York

Homelike in service, appointments and location . . . away from noise and congestion, yet but a few minutes from Times Square . . . garage facilities for tourists.

Room and Bath from $3 single $4 double

500 Rooms

Home folks will like this hotel

HOTEL

BRETTON HALL

BROADWAY at 86th STREET

NEW YORK

New Victor Gas and Fume Mask

Better Rubber. Longer Life. Better Fitted. Moulded to Fit the Face. Better Vision. Renewable Lenses. Better Air. Better Work. Low Prices. High Quality.

Over 5,000 Victor Gas Masks in Service

Full Line Fire Dept. Supplies and Equipment

New 43 Edition Catalog on Request

The Woodhouse Mfg. Co., Inc.

156 Chambers St., New York

D. A. Woodhouse Pres. and Gen. Mgr George J. Kuss Vice-Pres. and Treas.

PROPOSED IMPROVEMENTS

St. Joseph, La.—Louisiana Rating & Fire Prev. Bureau recommended purchase of 600 gal. triple combination pumper having carrying capacity of 1,000 ft. 2½-inch fire hose.

Forestville, Md.—Plans being made for formation of a volunteer fire department.

Chicopee, Mass.—City considering replacing present ladder truck at the Willimansett fire station with new piece of apparatus, according to reports. Arthur Montmeny, Chief of Fire Dept.

Graysville, Penn.—A volunteer fire department is being organized J. B. Orndorff as president. It is planned to purchase a chemical truck as soon as department is organized.

Spencer, W. Va.—City Council interested in purchase of new fire apparatus, according to reports.

Sumner, Wash.—City to vote at March election on purchase of fire apparatus, according to reports.

Atlantic Highlands, N. J.—City Council passed ordinance calling for expenditure of $7,000 for purchase of 500 gal. pumper for fire department, according to reports.

Proposals for Furnishing and Installing Fire Alarm Systems

EAST PROVIDENCE, R. I.

Bids received February 3, 1931

Bids for furnishing and installing a fire alarm system in the Town of East Providence will be received Februray 3, 1931, at 2 P.M. at the office of the Town Clerk.

Specifications and instructions to bidder may be obtained from the Town Clerk of East Providnce.

The right to reject any and all bids is hereby reserved.

Town Council of the Town of East Providence,
William E. Smyth,
Council Clerk.

1-7

Position Wanted

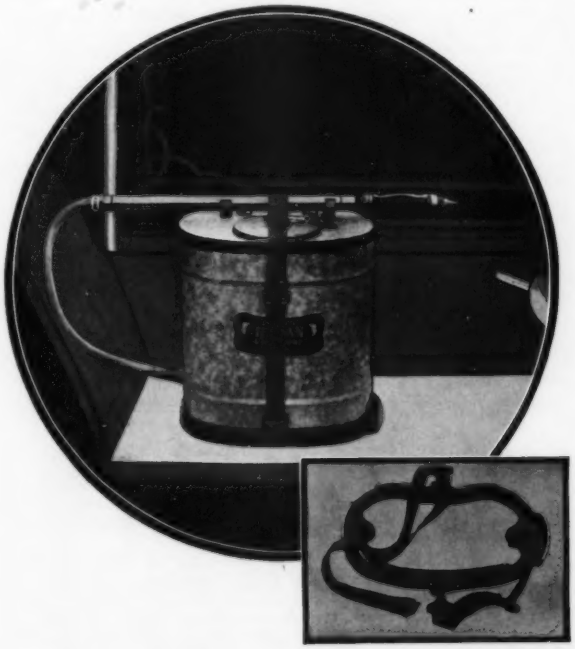
Delivery Engineer with 12 years' experience desires position as Master Mechanic with Fire Department anywhere in United States. References furnished from American LaFrance and Ahrens-Fox Fire Engine Companies. I desire permanent location because of family responsibilities. I am 34 years of age. Address: Box 325, care FIRE ENGINEERING, 24 West 40th St., New York City.

12-10, 24-1-7

Rack for Carrying Portable Pumps

A rack has been developed for carrying the Indian and Mohawk portable fire extinguishers manufactured by D. B. Smith & Co., of Utica, N. Y. It is made of strong, heavy web strap which fastens over the pump and locks in place quickly.

The tank, part of the pump, is curved in shape and fits



Portable Pump Firmly Fastened in Rack on Running Board of Fire Apparatus. Insert—Running Board Carrying Rack for Smith Fire Pump

snugly the back of the wearer and enables a man to move about with ease. This equipment has been found of value in fighting small fires such as blazes in poultry houses, brush and roof fires.

Nozzle Designed for Remote Control

A new type of monitor nozzle that makes possible control from distance points has been developed and is being marketed by Andrew J. Morse & Son, Inc., Boston, Mass. It is for the protection of steel work in oil refineries. The nozzle is mounted on the roof of a fireproof structure and is controlled from within the building. It is intended to keep the steel work cool in an oil refinery and thus to prevent the possibilities of a new fire developing and breaking out because of an adjoining or nearby blaze.

The nozzle can be built to supply 600, 1,100, 1,500 or 2,000 g.p.m. By increasing or decreasing the length of the pipe and the control rod, the nozzle can be operated from two, three or four different floors of a building, as may be required. All that would be necessary would be additional hand wheels.

Five Alarms Turned In for Boston Fire

A five-alarm fire swept the six-story brick building at Nos. 11-13 Columbia Street, Boston, Mass., on December 24, causing damage estimated at $75,000 by Chief Henry A. Fox, of the Boston Fire Department.

The first alarm was received at 2:21 a.m. A third alarm was ordered at 2:25, the second alarm being skipped. A fourth alarm was sounded at 2:27 and a fifth at 2:35.

The building, which was of second class construction, was occupied by the Manufacturers' Clearing House of America, dealers in rubber heels; the Guarantee Leather Company for storage; the Shapiro Leather Company; John Hetherington & Son, textile machinery; and the Canton Shoe Company.

Just after the first apparatus reached the scene, an explosion took place that sent a sheet of flame across the street, causing burns and injuries to three members of Engine Co. No. 7.

Dense smoke and the narrowness of the street in front of the building hampered fire department operations. One water tower stream from a 2-inch tip was operated, also a Morse wagon gun with 1¾-inch nozzle. Hose lines were taken through adjoining buildings and to the upper floors of buildings across the street from which point streams were directed into the upper floors of the burning structure.

There were twenty-six engine companies, six ladder companies, two water towers, one rescue company, two lighting plants, and the cars of the Boston Protective Department at the scene. Many hose lines were laid from high pressure hydrants with 150 pounds pressure and several lines from American-LaFrance motor pumping engines were also used. The fire department laid a total of 14,350 feet of 2½- and 3-inch cotton rubber lined hose.

The officers at the fire were Chief Fox, Assistant Chief Henry J. Power, Acting Deputy Chief John F. Good, District Chiefs Watson, Minnehan, and Martel, and Acting District Chief Chittick.

The fire is believed to have originated on the first floor and was reported as of suspicious origin. The state fire marshal is investigating. There have been several other fires in the same building in recent years. HARRY BELKNAP.

CONVENTION DATES

March 9-11—SOUTHWESTERN ASSOCIATION OF FIRE CHIEFS. 4th Annual Convention, Dallas, Tex. Secretary, Chief J. E. Taplin, Fire Department, Blackwell, Okla.

May 11-16—NATIONAL FIRE PROTECTION ASSOCIATION. 35th Annual Meeting, Toronto, Ont., Can. Managing Director, Franklin H. Wentworth, 60 Batterymarch St., Boston, Mass.

May 21—IOWA STATE FIRE CHIEFS' ASSOCIATION. Annual Convention, Ames, Iowa. Secretary-Treasurer, Chief L. R. Morris, Ames, Ia.

June 17-20—WASHINGTON STATE FIREMEN'S ASSOCIATION. 9th Annual Convention, Port Angeles, Wash. Secretary, S. H. Jenkins, Bellingham, Wash.

June 23-26—NEW ENGLAND ASSOCIATION OF FIRE CHIEFS. 9th Annual Convention, Boston, Mass. Secretary, Chief John W. O'Hearn, 99 Main Street, Watertown, Mass.

July 13-16—MONTANA STATE FIREMEN'S ASSOCIATION. 40th Annual Convention, and Firemen's Short Course, Bozeman, Mont. Secretary-Treasurer, D. E. Moser, Bozeman.

Sept. 8-10—ILLINOIS FIREMEN'S ASSOCIATION. 44th Annual Convention, Murphysboro, Ill. Secretary, Assistant Chief Roy W. Alsip, Champaign, Ill. Exhibit information, Chief Albert Herring, Murphysboro. Also, 1st Annual Convention, Ladies' Auxiliary, of Illinois Firemen's Association. Secretary, Mrs. R. W. Alsip, Champaign.

Sept. 19-22—PACIFIC COAST ASSOCIATION OF FIRE CHIEFS. 38th Annual Convention, Royal Hawaiian Hotel, Honolulu, T. H. Secretary, Jay W. Stevens, 1014 Merchants' Exchange Bldg., San Francisco, Cal.

The Law as to Compensation

(*Continued on page 12*)

which conforms to the limitations prescribed by the Legislature, is presumptively reasonable and valid, and not in conflict with the state or federal Constitutions."

Duty of Motorman When Stopping Street Car

Usually, a street car motorman is not negligent, but fully within his rights, if he stops his car any place except in a street intersection, upon hearing approaching fire apparatus. So held the higher Court in the late case of Souza vs. Market St. Ry. Co., 289 Pac. 665.

The facts of the case are that a man and his family were seated on the left-hand side in the front portion of a street car, when approaching fire engines sounded their sirens. The street car stopped and presently a fire engine scraped the side of the street car, resulting in serious injury to the passenger. He sued to recover damages. In holding the street car motorman not negligent in stopping his car in close proximity to a street intersection, the Court said:

"In stopping where it stopped, the car acted in accordance with the mandate of the statute to clear the intersection. That is the purpose of the statute as addressed to such a set of circumstances. If the car had attempted to make the opposite corner, it would have placed itself as an immediate obstruction in the intersection in the path of the fire vehicle . . . and would have done the very thing the statute was enacted to prevent. There is not a particle of claim that in any other regard the motorman was negligent."

Injuries Within Scope of Employment

It is not essential to the right to receive compensation that the employee should have been working at the particular time when the injury was received. The employment is not limited to the exact moment when he begins work or when he quits work. A risk is incident to the employment when it belongs to or is connected with what a fireman has to do in the fulfillment of his contract of service. It may be incident to the employment when it is either an ordinary risk directly connected with the employment, or an extraordinary risk which is only indirectly connected therewith.

On the other hand, an employee must not unnecessarily increase the risk of injury to himself beyond that ordinarily contemplated or choose an unnecessarily dangerous place for the doing of the act which is claimed to be incident to the employment. In other words, where a member of a fire department chooses to go to a dangerous place where his employment does not necessarily carry him, and thus increases a danger of his own choosing altogether outside of any reasonable requirement of his work, such risk is not incident to the employment. This rule is applicable where a fireman endeavors to recover under the common law damages for an injury. The latest higher Court case involving these important points of the law is Landon vs. Industrial, 173 N. E. 49.

The facts of this case are that a truck became disabled and its driver named Cleary decided to ride on another truck. Without knowledge of the driver Cleary attempted to climb from the rear end around into the cab and in so doing his hand and foot slipped and he fell. The rear wheel passed over his right leg and it was permanently injured.

The question presented the Court was whether the injury to Cleary arose out of and in the course of his employment and whether by his conduct he increased the dangers of his employment so as to deprive him of his right to compensation.

In holding Cleary not entitled to compensation the Court said:

"An injury must arise out of and in the course of the employment or it must be incident to the employment. . . . An employee is engaged in the course of his employment when the injury occurs within the period of his employment, at a place where he may reasonably be, and while he is reasonably fulfilling the duties of his employment or is engaged in doing something incidental to it. . . . An injury arises out of the employment when there is apparent to the rational mind, upon consideration of all the circumstances, a causal connection between the condition under which the work was required to be performed and the resulting injury. . . . He (Cleary) assumed the danger of attempting to climb along the left side of the cab and slipped, fell, and was injured. This danger was one of his own selection, his employer had nothing to do with it, it was not incident to his employment, it did not arise out of his employment."

Court Construes State Law

In many instances attempts have been made to obtain judgments for damages against municipalities, basing the suits upon state or city laws which apparently justify allowance of damages, but which were not intended by the legislatures to include the circumstances of the suit. Generally speaking, in construing a law of this nature the Court endeavors to interpret the intentions of the law making body which passed the law.

For example, in Oswald vs. City of Orangeburg, 151 S. E. 230, a state law was discussed which provides:

"Any person who shall receive bodily injury, or damages in his person or property, through a defect in any street, causeway, bridge or public way, or by reason of defect or mismanagement of anything under control of the corporation within the limits of any town or city, may recover, in an action against the same, the amount of actual damages sustanied by him by reason thereof."

In this case a fireman sued a city to recover damages in the sum of $20,000 for injuries sustained on account of "careless, negligent acts and the negligent and reckless mismanagement of its Fire Department."

The facts are that a fireman named Oswald was directed by the chief of the fire department to assist in extinguishing a fire in a three-story building, and to keep the streets near and about the burning building clear of all material that may fall or be thrown from the building, and to keep the streets in a clear and safe condition for the traveling public and pedestrians traveling along the streets and sidewalks of the city near the fire.

The fire began to gain headway over the efforts of the fireman, and, after they had been fighting fire for about three hours, the chief of the fire department ordered Oswald to come down from the top of the building on the ladder that had been used by the firemen in getting up on the building. Just as Oswald started down, the end of the ladder that rested on the sidewalk slid out into the street and caused him to fall from the top of the ladder. He struck one of the window sills or facing of the building and the top of an iron lamp post in the street by the sidewalk and was seriously and permanently injured. His skull was fractured, nose cut and broken, teeth knocked loose, right leg broken above the ankle, arms and body severely cut and bruised.

Evidence was introduced showing that some time prior to the fire, the chief of the fire department had the steel points used on the bottom of the pike poles taken off and made much shorter than they were originally and rendered the ladder in an unsafe, dangerous condition for use. Also, no persons stood at the bottom of the ladder to prevent it from slipping.

The counsel for the fireman contended that the city was negligent in providing a defective ladder and that Oswald was entitled to compensation under the above law, because when he was injured he was in the act of carrying out the fire chief's instructions to descend from the building and clear the streets of all rubbish and fallen material from the building to make them safe for the traveling public and pedestrians traveling along the streets.

Notwithstanding these arguments, the Court held the fireman not entitled to damages, stating the following important law:

"In order to maintain an action under the provisions of this law it must appear that the injuries complained of, and the damages resulting therefrom, were caused by or through a defect in a street, bridge, causeway or public way, within the limits of the municipality, and caused by the neglect or the mismanagement of the municipality, its officers or agents, or by reason of a defect of anything under the control of the municipality, used in making repairs in the streets, causeways, bridges, or public ways, within the limits of the municipality, and due to the neglect of the municipality, its officers or agents."

Fireman Not Entitled to Extra Payment

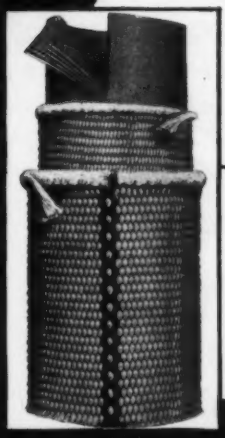
Generally speaking, a fireman cannot collect salary in arrears, or extra payment, unless an expressed or implied agreement was made by properly authorized municipal officers to pay such salary.

For illustration, in Schroeder vs. City of New Albany, 170 N. E. 83, it was disclosed that a man named Schroeder was a member of a third class city fire department from February 1, 1923, until January 3, 1926. From January 1, 1921, to January 1, 1927, the organized fire force of the city consisted of one body or platoon, which did both day and night service. From February 1, 1923, to January 3, 1926, Schroeder worked continuously as a member of the regularly organized and paid fire force, and during the period he was a member of the single platoon which did both day and night service, and in the performance of these duties he worked 24 hours in every calendar day.

Schroeder sued the city for $3,510 back pay on the contention that he was entitled to compensation for two statu-

CRACKERJACK FIRE HOSE

The hose with an unsurpassed reputation for QUALITY AND SERVICE that has made it the STANDARD OF THE WEST for over twenty-five years...and now gaining rapid acceptance in all parts of the country.



TODAY

CRACKERJACK Double jacketed cotton rubber lined Fire Hose is recognized by municipalities as a most dependable and economical hose value. "Top Quality" has been the traditional policy since its introduction. . . .

Write us about your Fire Hose requirements or request catalog for complete line of Fire Hose for every purpose. Address communication to nearest branch.

The American Rubber Mfg. Co.

Factories and General Offices
OAKLAND, CALIFORNIA

Sales Offices

Los Angeles, 458 So. Spring St. — Portland, Ore., 602 Bedel Bldg.
Boise, Idaho., P. O. Box 1432 — Spokane, Wash., 112 S. Monroe
Kansas City, Mo., 3547 Lydia St. — San Francisco, 410 Matson Bldg.
Baltimore, 407 Munsey Bldg. — Dallas, Texas, 3035 Commerce
Salt Lake City, Utah, 149 W. Second So. Street

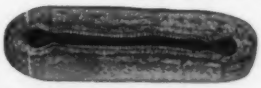
THE AMERICAN RUBBER MFG. CO. OAKLAND, CAL.

BI-LATERAL FIRE HOSE

"IT'S DIFFERENT"

Fire hose of every description, make or kind has to be stored flattened ninety-nine percent of the time.
The flattening of Bi-Lateral Hose curves the rubber in the space that is free from the jacket.
Hose manufactured the old way compresses and creases the rubber when it is flattened.

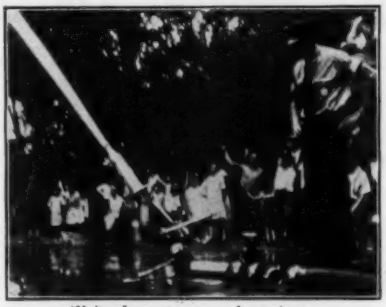
"THAT'S THE DIFFERENCE"



BI-LATERAL FIRE HOSE CO.
20 No. Wacker Drive
Civic Opera Bldg.
Chicago, Ill.

THE NEW EASTMAN DELUGE GUN

is a portable turret pipe that can be used on the ground or mounted on the apparatus. This photo shows our three-way gun used on the ground, connected to two lines of hose. This gun may be furnished with either two-way, three-way or four-way Siamese, as desired.



Write for new general catalogue

SAMUEL EASTMAN COMPANY
Concord, N. H., U. S. A.

EDDY
Fire Hydrants

Are given preference by so many fire protection and water works men because they know that more than half a century of experience go into their manufacture and they embody valuable and exclusive features.

Write for the Facts

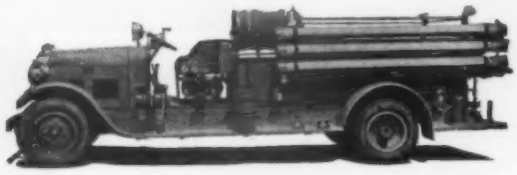
EDDY VALVE CO.
Waterford, N. Y.

James B. Clow & Sons, Chicago Agents

Baker Fabric

A mass-woven jacket of exceptional pliability. The rubber lining is reinforced to flatten without breaks or pin holes. Write for details.

MANUFACTURED EXCLUSIVELY BY
HEWITT - GUTTA PERCHA
RUBBER CORPORATION
BUFFALO, N. Y.
(Also makers of single and double jacket hose)
"Territories Available"



HAHN

For dependable, efficient service, Hahn apparatus enjoys a most excellent reputation. Triple combination pumpers in all capacities up to 1000 gallons, Chemical and Hose Trucks, City Service Trucks and Squad Wagons.

Full information upon request

Hahn Motor Truck Corporation
ALLENTOWN, PA.
20 Years' Experience Building Fire Apparatus

when!

You are interested in Fire Fighting Equipment consult:

BOYER

Builders of equipment to meet your requirements. Specializing in Apparatus for Rural Fire Fighting.

BOYER FIRE APPARATUS COMPANY
Loganspott, Indiana

Fire Fighting Appliances
Fire Department Ladders

Pike Poles, Door Openers, Battering Rams, Pull Down Hooks, Roof Cutters, Life Belts, Tool Holders, Ladder Locks, Ceiling Cutters, Bells, Nozzles, Hydrant Connections, etc.

Write us when interested

COMBINATION LADDER CO., INC.
381 Fountain Street Providence, R. I.

B B B B B B B B B B B B B B B B B B B B B B B B B B B

If you want something better . . . buy

BUFFALO FIRE APPLIANCE CORP. BUFFALO, N.Y.

BUFFALO

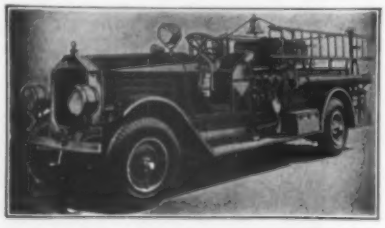
Write for Complete Information

BUFFALO FIRE APPLIANCE CORP.
BUFFALO NEW YORK

B B B B B B B B B B B B B B B B B B B B B B B B B B B

MAXIM FIRE APPARATUS

All Types



All Sizes

If you are thinking of buying new apparatus shortly, be sure to get all the facts about MAXIM before you decide.
Send for complete information

MAXIM MOTOR COMPANY, Middleboro, Mass.
Metropolitan Sales Agents:
The Woodhouse Manufacturing Co., 156 Chambers St., N. Y.

LARKIN Fire Department Supplies

in Service Wherever Fires Are Fought

Our general line of equipment includes every fire department supply of merit.

Larkin shut off nozzles alone are in service in over 5,000 fire departments in U. S. and Canada.

Give us an opportunity of quoting on your next requirements. Let us send you our general catalog.

THE LARKIN MANUFACTURING CO.
Established 1898 DAYTON, OHIO

G

The new Rensselaer Catalog "G" is now ready for distribution. Officials desiring the latest information on RENSSELAER VALVES and COREY HYDRANTS are invited to fill in and mail the coupon below.

RENSSELAER VALVE CO.,
TROY, NEW YORK.

Send Catalog "G" to

Name .....
Title .....
Street .....
City .....

A WORD TO OUR ADVERTISERS

Will you co-operate with us in our effort to keep the advertising pages of FIRE ENGINEERING just as live and interesting as the editorial pages? Send us new photographs and copy material, news matter, etc., for your advertising space just as often as possible.

Remember that you are not getting full value from your advertising unless you make it interesting, or give us the opportunity to do it for you. Think it over—and send us some new material.

THE PUBLISHERS.

tory days' service for each calendar day in this period.

However, it is interesting to observe that the higher Court upheld the lower Court's decision, which held Schroeder not entitled to extra compensation, and stated important law as follows:

"If there can be a recovery for the alleged services, it must be because they were performed under a valid contract, express or implied. . . . Appellant's (Schroeder's) complaint, in order to be sufficient, must show that there was an existing and unexpended appropriation at the time the contract, express or implied, was entered into, out of which appellant could be paid for the services contracted for. . . . No facts are alleged in the complaint from which an implied agreement would follow, if such there could be. In the absence of such averments, the presumption is either that appellant volunteered such services, or that the salary or other compensation provided for in the contract was intended to compensate him also for the extra work."

Fire Department Employees Entitled To Compensation Under Employers' Liability Act

The duties of a fire department lineman principally relates to the installation and maintenance of the fire alarm telegraph, whereby the different fire stations keep in touch with each other on matters pertaining to the action of the department. Usually, they must be ready either day or night for duty, and while not required to answer the first alarm of fire, generally they must on the second and third alarms report to the officer in charge and may be assigned to any duty he directs. For the reason of these duties linemen are legally classified as being under the city fire department and are entitled to compensation for injuries to the same extent as other city employes and members of the fire department.

For instance, in Asher vs. City of Portland, 284 Pac. 586, it was disclosed that a lineman was seriously injured when a pole fell while he was repairing a wire of a fire alarm system. He instituted legal proceedings to recover compensation from the city.

The counsel for the municipality contended that the lineman was not entitled to compensation as a city employee, because he was connected with the fire department which performs governmental duties.

However, the Court held the city liable, saying:

"A careful examination of the testimony indicates that there was sufficient evidence to have sustained a verdict for plaintiff (injured lineman) had defendant (city) been a private corporation; the principal contention here urged being based upon the fact that defendant is a municipal corporation and the assumption that plaintiff's position as a lineman attached to the fire department for certain purposes rendered him an officer of the municipality instead of an employee, and that therefore he is not within the purview of the Employers' Liability Act. . . . There being no presumption as to what capacity the city was conducting or causing to be conducted the work, we think that, under the circumstances alleged, it is fair to assume that it was acting in its corporate or proprietary capacity instead of its governmental capacity. . . . The duties of a fireman, while they invest the person, performing them with serious responsibilities in some respects, perhaps sufficiently to make him, as respects his relations to the public, at least a quasi officer to the extent that his acts, when negligent, will not bind the city when acting in its governmental capacity, do not necessarily take away from his character as an employee. The blacksmith, when selected by reason of his mechanical skill to shoe the horses used in the fire department, is still a blacksmith, but, the maintenance of the fire department being governmental, the city is not liable for injuries received by him while engaged in that duty. . . . While it may be admitted that, so far as his relations with the public are concerned, a fireman may be termed an officer, having certain duties to perform, it does not follow that he is therefore such an officer as to be excluded from the benefits of the Employers' Liability Act."

In another leading case, Giaconi vs. City of Astoria, 60 Or. 12, suit was brought against a city for negligence in the planning and execution of an undertaking for street improvement. The Court defined the cities liability for negligence in the execution of the work as follows:

"A municipal corporation in devising plans for improving public highways within its border acts judicially, and when proceeding in good faith is not liable for errors of judgment; but in constructing the work it acts ministerially, and is bound to see that the plan is executed in a reasonably safe and skillful manner."

Physician's Testimony of Injury Not Accepted

In many cases involving the death of a fireman it is impossible for physicians to testify positively of the exact cause of the death. Generally speaking, however, the Courts decide in favor of the employee's dependents if the testimony indicates with reasonable certainty that death was caused from an injury which arose within the scope of the employment.

For illustration, in Beatrice vs. Standley, 281 Pac. 110, it was disclosed that an employee was injured in an accident arising out of and in the course of his employment. Shortly thereafter there arose on his left knee a lump, which was afterward diagnosed as a tumor and removed. Soon after cancer developed from which the employee died. Relying on testimony from physicians who believed the cancer resulted from the injury the Commission allowed compensation to the dependents. The Court upheld this decision stating the following important law:

"The testimony may be unreliable. The whole subject is shrouded in more or less mystery, and, despite the present opinions and theories of some of the authorities and members of the profession, the true cause of such a cancer may tomorrow be established as entirely separate and apart from such an injury. But in our opinion the foregoing is sufficient 'substantial and credible evidence.'"

Badge Presented to Chief Sands

Chief William J. Sands, of the Quincy, Mass., Fire Department, was recently presented with a gold badge as a gift from the officers and members of the department. This gift, a token of esteem from the firemen, came as a complete surprise to the chief who assumed command of the force last September, being appointed as successor to the late Chief Alfred J. Mead.

Chief Sands joined the Quincy Fire Department as a call man in 1906 and was made a permanent fireman in 1912. He was promoted to lieutenant in 1920 and to deputy chief in 1929. Last month he was elected to membership in the Fire Chiefs' Club of Massachusetts.

HARRY BELKNAP.

Chief William J. Sands

To Organize a Fire Company

Steps are being taken by the residents of the town of Weston, Conn., to organize a fire company, erect a fire station and purchase suitable apparatus to take care of the needs of the town. Weston is without fire protection at the present time and in the event of a fire depends entirely upon the departments at Westport and Wilton for help. With scores of expensive homes erected recently in Weston, the demand for fire protection is becoming greater every day.

THOMAS F. MAGNER.

New Form of Fire "Trap" Discovered

A fire trap, evolved with an ingenuity that would rival the genius of an Edison, is in possession of the Charlotte, N. C., City Police Department and will be turned over to investigators of the State Insurance Department.

The trap, which consists of a cigar box, a clock, a rat trap and a box of matches with several springs and "do-dads," had apparently been "fired" but it had failed to carry out its full designed program.

The trap was discovered beneath a house on the farm of a prominent Charlotte resident. Inventive genius was displayed by the person who made the fire producing machine, according to officers. A cheap clock, with the back of the case removed leaving the workings exposed, was riveted to the side of the box. A string was fastened to the hour wheel on the clock, and this extended to a rat trap. According to the timing the string would throw the rat trap, which in turn released a heavy spring, clamped to the end of the box. This spring had a match fastened to the end and when it was released, the match was dragged across a match box, cut in half and filled with matches, the heads being exposed. The struck match then ignited the matches, which in turn were supposed to ignite a small tube of chemical.

Near the fire trap were shavings, straw and a bottle of gasoline, which was tilted so that it would topple over and spread the gasoline over the straw and shavings. When discovered the trap had gone off as all the matches had been struck, but it failed to produce a fire after the first flash of matches.

D. G. SPENCER, JR.

FALSE ALARMS

WELL KNOWN

The volunteer department had a case against the railroad. At a guarded crossing, the gates were not lowered, and a ladder truck was damaged by an oncoming train. Luckily no one was hurt. A colored man was the department's star witness. On the stand, the opposing attorney asked:

"Do you know the man who lowers the gates?"

"Yas, suh. Ah has a logical 'quaintance wid him," the Negro replied.

"What do you mean by a logical acquaintance?"

"Well, suh," he replied, "we is membahs of de same lodge."

You can always tell a Scotchman. He smokes his Christmas cigars.

THOROUGH GO-GETTER

The fire company was planning a celebration to mark its fiftieth anniversary. Since the men were all busy during the day and could not devote their time towards securing advertising, and winning the financial support of the community, the services of a competent salesman were required. One who had heard of the position, applied.

"What sort of recommendations have you?" he was asked.

"Well I sold raincoats to farmers last summer all during the drought," he replied.

Well, anyhow, it will be a long time before any candidate for office has the nerve to suggest that his election will insure prosperity.

THE REASON

The winter programs of the Fire Department were of a high standard —lectures, good music and talented singers. A considerable following had been developed and the committee saw to it that the proper decorum existed so that all would enjoy the program. An attendant was soon rewarded for his keen hearing. He rushed down the aisle and said to a guest:

"I shall have to ask you to leave if you persist in hissing the performers, sir."

The guest replied, "Hissing! I w-w-was s-s-simply s-s-saying that the s-s-singing was s-s-superb."

In the winter you can pour alcohol in your auto radiator to keep it from freezing, but in an apartment house you have to pour it in the janitor.

FIGURE IT OUT

Two men were sent up from the city to address a fire department meeting. On the way back to the city after the meeting was over, the speaker turned to his friend and asked:

"What did you think of my lecture?"

"Well, to begin with, you had a large audience."

Sometimes a judge clears out the courtroom. And sometimes he clears out himself.

TRUTH AT ANY PRICE

An apparatus salesman having made his call, purchased his ticket at the railroad station and looked around for his train.

"Is this the 3:15 train?" he asked the baggage man.

"We've nothin' as precise as that, sir. We just calls it the afternoon train."

Selling apples on street corners may be an excellent thing for the unemployed, but it looks as if there's a hard winter ahead for the doctors.

TOO LATE

The works manager of a large industrial plant had been looking out of the window, for there was nothing else to do. What he saw made him take quick action. He rang for a foreman.

"Send in young Clancey," he said to the foreman. "I saw him smoking on a load of powder a while ago and I'm going to fire him."

"Well, sorr, here's part of his hat," replied the foreman.

AND THAT'S THAT

A member of the Rescue Company had worked over a girl who had been overcome by smoke. Finally he met with success. In the crowd that had collected about the building the fireman noticed the girl's father.

"Sir, I have just resuscitated your daughter."

The father became very much excited, and shouted, "Then, by gad, you'll have to marry her!"

NECESSARY CHANGE

The local fire department no longer indulges in baseball practice in Hy Smithers' cow pasture since Lem slid for what he thought was first base.

MULTIPLICATION

A visitor called at the station and the fireman who acted as host complained about the low wages paid in the fire service.

"I'm the father of six daughters," said the fireman.

"Then you have six mouths to feed."

"No, we have twelve," replied the fireman. "They are all married."

What a world! By the time you're important enough to take two hours for lunch the doctor limits you to a glass of milk.

HONEST MEN

Even young men in fire departments get married. The day had been fixed and considerable of the details had been attended to.

"Do you mean to say you can't find a best man?" questioned the lady of his choice.

"Hundreds of them. But not one that I would trust with the ring."

PROSPECTS GOOD

While waiting for the truck to return, the following conversation was heard as two girls passed by:

"I like that man's voice."

"Why?"

"I think there's a ring in it."

—Drawing by "Art" Espey

Continuing the Suggested Regulations for Fire Department Football

Have you ever watched football games with a somewhat critical eye? Here is what generally happens. One man tries to break through a line and a melee results in which most of the twenty-two men try to participate. Firemen are trained in the use of special tools. When it is impossible to force the ball through an aggregate weight of well over a ton, the simpler thing would be to carry it over the top. Even a battering ram could be used to open up a solid line. It has performed this funtion at other times. There is no telling how the official referee may react towards these suggestions but at any rate he would give the firemen credit for having some of the most original ideas—yes he would.

YOUR CATALOG PAGE

Fire Protection Equipment and Supplies

1 Acid Siphons.
2 Adaptors for Changing Hydrant Threads.
3 Acid Jars and Rings.
4 Aerial Ladders, Detachable.
5 Aerial Trucks.
6 Alarms, Siren, Electric.
7 Alarm Systems, Industrial.
8 Alarm Systems, Municipal Telegraphic.
9 Alarms, Thermostatic.
10 Asbestos Clothing.
11 Badges, Insignias, Buttons, etc.
12 Banners, Trumpets, etc.
13 Battery Jars.
14 Battery Zincs for Fire Alarm Batteries.
15 Bells, Fire Alarm, Municipal
16 Body Equipments.
17 Boxes, Gongs, Reels, Registers, Fire Alarm.
18 Brakes, Air.
19 Brake Linings.
20 Brooms, Fire.
21 Building Materials, Fire Retardant.
22 Caps, Firemen's.
23 Chains, Non-Skid Fire Apparatus.
24 Chassis for Fire Apparatus.
25 Chemical Engines and Tanks.
26 Chimney Fire Fusees & Compounds.
27 City Service Trucks.
28 Coats & Suits, Firemen's Quick Hitch.
29 Combination Chemical & Hose Cars.
30 Cutting & Welding Equipment Blow Torch.
31 Cutting & Welding Equipment, Electric.
32 Deluge Sets.
33 Door Openers, Fire Station, Automatic.
34 Extinguishers, Calcium Chloride.
35 Extinguishers, Carbon Dioxide.
36 Extinguishers, Soda-Acid.
37 Extinguishers, Carbon Tetrachloride.
38 Extinguishers, Foam.
39 Extinguishers, Powder.
40 Fire Boat Nozzle Equipment.
41 Fire Department Supplies, General.
42 Fire Exit Devices, Door Opening.
43 Fire Alarm Posts.
44 Fire Escapes, Portable.
45 Fire Escapes, Rigid.
46 First Aid Equipment.
47 Flare Lights.
48 Flashlights, Hand.
49 Foam Liquid for Extinguishers.
50 Gas Masks and Respirators.
51 Gas & Smoke Helmets.
52 Gasoline & Oil Handling Equipment.
53 Goggles, Firemen's.
54 Helmets, Metal, etc.
55 Hose Carts, Reels & Racks.
56 Hose Clamps.
57 Hose, Fire.
58 Hose, Chemical.
59 Hose Holders.
60 Hose Jackets.
61 Hose Standardization Tools.
62 Hydrant Draining Pumps.
63 Hydrants, Fire.
64 Jacks for Fire Trucks.
65 Jacks, Shoring & Prying.
66 Ladders, Fire.
67 Lightning Arresters.
68 Motorcycles, Fire Dept. Equipped.
69 Nets, Life.
70 Nozzles, Pipes & Misc. Brass Goods.
71 Packings, Pumps.
72 Pads, Pole Hole.
73 Paints, Fire Resisting.
74 Priming Ether, Motor.
75 Pumping Cars, Standard.
76 Pumping Cars, Foam.
77 Pumps, Fire Apparatus.
78 Pumps, Fire Service, Stationary.
79 Pumps, Portable for Fire Protection.
80 Record Books, Fire.
81 Relief Valves.
82 Reviving Apparatus, Oxygen.
83 Rubber Clothing
84 Salvage Covers.
85 Searchlights.
86 Shingles, Fire Retardant.
87 Shirts, Firemen's Special.
88 Sirens, Apparatus & Chiefs' Cars.
89 Sliding Poles.
90 Soda & Acid Chemicals.
91 Spark Plugs, Fire Apparatus & Motorcycles.
92 Squad and other Auxiliary Cars.
93 Sprinkler Head Shut-Offs.
94 Sprinkler Supervisory Service.
95 Sprinkler Systems, Automatic, Foam.
96 Sprinkler Systems, Automatic, Water.
97 Steam Fire Engines.
98 Tarpaulins & Fire Blankets.
99 Tetrachloride Chemicals.
100 Thawing Equipment, Hydrant.
101 Tires, Fire Apparatus, Pneumatic, Solid, Cushion and Non-Skid.
102 Tractors.
103 Traffic Clearing Systems.
104 Triple Combination Pumping Cars.
105 Uniforms.
106 Water Towers.
107 Wheels, Cushion.
108 Whistles, Fire Alarm, Compressed Air
109 Whistles, Fire Alarm, Steam.
110 Whistles, Fire Apparatus.
111 Wrecking Trucks.

PDQ

When You're in a Hurry for Complete Information

—on new equipment you plan to order for your departments, then use this page to get it P. D. Q.

Just run down the list of equipment, fill out the coupon below, and mail it to us with the numbers that indicate the equipment in which you are interested.

We will then notify reliable manufacturers of your interest in such equipment and request that without cost to you or any obligation they send you the information you desire.

They will gladly do this. So go to it! Ask for what you want. This page is for your convenience. Use it now—and whenever you decide to buy new equipment of any kind.

FIRE ENGINEERING, 24 West 40th St., New York City

As a fire protection official I should like to have descriptive literature and complete information mailed to me, without cost or obligation, on the equipment indicated by the following numbers: Date.....

Nos. .....

Nos. .....

Nos. .....

Nos. .....

Name .....

Position .....

Street .....

City and State.....

For Information on Any Equipment Not Listed, Write on This Page or Use Separate Sheet

1-7

THE RED ARROW SIREN

Siren with Storm Hood

The greatest possible capacity per horse power.
It has won out over others in more than one hundred competitive tests.
Protected from birds, storm and sleet.
Runs entirely on ball bearings.
Double tone, (Two sirens in one).

For Particulars, write:

DECOT MACHINE WORKS
Sauk City, Wisconsin

JACOB REED'S SONS

Founded 1824 by Jacob Reed

FIREMEN'S UNIFORMS

Thoroughly tailored of especially selected fabrics. Uniforms that look well, wear well and that will give entirely satisfactory service.
Reed's Uniforms are most economical because they represent full value for the amount expended.

Write for catalog and prices.

1424-1426 Chestnut St., Philadelphia, Pa.

Hedberg Super Sirens

"The World's Best by Test"

offer the world's greatest and most versatile range of choice involving sizes and methods of operation.

Write for descriptive matter showing sirens that have never lost in competition.

J. N. HEDBERG
321-49 W. REED ST.,
SAN JOSE . . . CALIFORNIA

JOHN H. CLAY, INC.

1320 Ridge Ave., Philadelphia, Pa.
Established 1864

Clay Automatic Door Opening Devices for Fire Station Doors Opening either In or Out. Save valuable minutes in getting to fires. Send for Bulletin.

One big whistle with 1930 improvements throwing the sound equally in all directions.
THE BEST MADE, we leave it up to you, your engineers or any good mechanic, and a test.
The decision will unquestionably be the ERICK, designed for the purpose.

For further information address

Erick Electric Siren Co.
Canby, Minn.

Fire Alarm Signals
Water Meters
Compounding Valves
Stops
Water Pressure Regulators

Presses for Lining Service Pipe with Cement

Union Water Meter Co., Worcester, Mass.
Incorporated 1868

Let the world's oldest and largest exclusive manufacturer of sirens solve your siren problems.

STERLING SIRENS

You will find in the Sterling line a siren for every purpose.

Sterling engineers are glad to give you their assistance.

STERLING SIREN FIRE ALARM CO., Inc.
61 Allen St. Rochester, N. Y.

HOTEL PENNSYLVANIA

39th and Chestnut Sts., Philadelphia

Easily upholding the traditions of open-handed hospitality for which Philadelphia is famous, Hotel Pennsylvania offers tempting invitation to all who demand the best. Eight minutes from city center. Moderate rates. Unrestricted parking.

Room with bath $3.00
DANIEL CRAWFORD, Jr., Manager

600 ROOMS 600 BATHS

ADVERTISING INDEX

Advertising Pays—in Fire Engineering

	PAGE
Ahrens-Fox Fire Engine Co.	5
American District Tele. Co.	27
American LaFrance & Foamite Corp.	*Inside Front Cover*
American Rubber Mfg. Co.	31
Anderson Coupling & Fire Supply Co.	28
Bi-Lateral Fire Hose Co.	31
Boyer Fire Apparatus Co.	32
Braxmar Co., C. G.	28
Bretton Hall Hotel	28
Buckeye Iron & Brass Works	38
Buffalo Fire Appliance Corp.	32
Clark-Cooper	28
Clay, Inc., John H.	36
Combination Ladder Co.	32
Darling Valve & Mfg. Co.	3
Decot Machine Works	36
Eastman Co., Samuel	31
Eddy Valve Co.	31
Erick Electric Siren Co.	36
Eureka Fire Hose Mfg. Co.	*Front Cover*
Everson-Ross, Inc.	38
Fabric Fire Hose Co.	6
French & Hecht	*Back Cover*
Fulton Bag & Cotton Mills	38
Gamewell Company	8
Hahn Motor Truck Co.	32
Hedberg, J. N.	36
Hewitt-Gutta Percha Rubber Corp.	31
Hotel Pennsylvania	36
Information for Buyers	**35**
Lally Fire Appliance Co.	28
Larkin Mfg. Co.	32
Mack Trucks, Inc.	7
Maxim Motor Co.	32
Morse & Son, Inc., Andrew J.	38
Reed's Sons, Jacob	36
Rensselaer Valve Co.	32
Sterling Siren Fire Alarm Co., Inc.	36
Union Water Meter Co.	36
Waterous Company	27
Wausau Fire Hose Protector Co.	28
Wood & Co., R. D.	27
Woodhouse Mfg. Co.	28

You Will Find it Pays To Buy

From These Responsible Manufacturers

They are leaders in their respective lines and are in position to take the best possible care of your requirements.

The fact that they are using advertising space in FIRE ENGINEERING indicates they want your inquiries and will be glad to submit specifications and prices without placing you under any obligations whatever.

They are ready and anxious to serve you courteously in every way possible. Be sure to write them for complete information when considering new purchases—and place your orders with them.

They are helping us make the paper better by their advertising. You can help them and help us and help yourself by giving them your business. Let's all pull together! All will benefit.

The Publishers

Newest Designs *Highest Quality*

Specializing in badges and insignia equipment for every fire department need, the EVERSON-ROSS line, known for its fine quality of materials and workmanship, offers a large, up-to-date selection to suit the most discriminating taste. Before you buy—

Write for our Fire Department Badge Catalog No. 32.

EVERSON-ROSS CO.

88 Chambers Street, New York

REMOTE CONTROL

The NOZZLE shown was designed and several have been installed for the PROTECTION *of* STEEL WORK *in* OIL REFINERIES

The nozzle is mounted on the roof of a fire-proof structure and is operated from within the structure. They are proving very successful. *Write for interesting data* . . . .

ANDREW J. MORSE & SON, Inc.

221 HIGH STREET BOSTON, MASS.

Minimize Water Damage · Reduce Insurance Rates

Shuredry

Waterproofed

Salvage Covers

City of Charleston
WEST VIRGINIA

Nov. 16, 1929

Fulton Bag & Cotton Mills,
Atlanta, Ga.

Gentlemen:-

The "SHUREDRY" salvage covers I purchased from you some time ago are doing just what you recommended them to do. They have paid for themselves several times in reducing the water damage.

I believe they are one of the most important things in a department with the largest saving, and the smallest purchase cost.

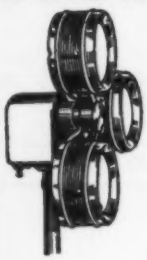
Very truly yours,

Write for Samples and Prices

Fulton Bag & Cotton Mills

St. Louis Atlanta Dallas
Minneapolis Brooklyn New Orleans Kansas City, Kan.

The most Effective Combination of Warning Signals



BUCKEYE "ROTO-RAYS"—A silent signal of unquestioned effectiveness to protect your apparatus and your firemen against accidents.

At night these three revolving red signal lights make identification of the apparatus instantly possible as far as light is visible.

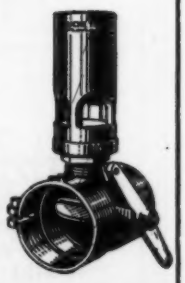
Insist upon having "Roto-Rays" on the next piece of apparatus you buy. It's just as essential as the whistle, the siren or the bell. Easily installed on apparatus now in service.

The Powerful BUCKEYE EXHAUST WHISTLE predominates in over 600 fire departments where serious traffic problems exist.

The shrill blast of a Buckeye Whistle effectively carries far ahead of the apparatus. Its sound is distinctive and extremely penetrating.

"Roto-Rays" and a Buckeye Whistle form the most effective combination of Warning Signals in existence.

Prices and full particulars upon request.



Buckeye Iron & Brass Works

326 E. Third St. Dayton, Ohio

BUCKEYE

WARNING SIGNALS THAT WARN

We shall appreciate your mentioning FIRE ENGINEERING *when writing advertisers.*

What becomes of the VALUABLE INFORMATION that comes to you in the pages of every issue of

FIRE ENGINEERING

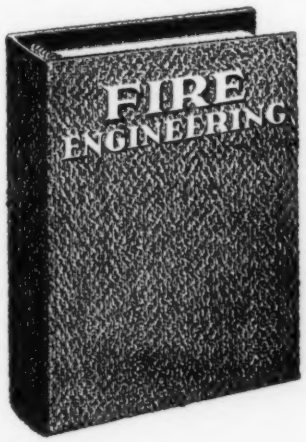
Do you FILE it—or do you PILE it?

THERE'S a lot to learn about the fire game. No one man can be expected to know ALL about it—BUT—ONE thing you can do. Every issue of FIRE ENGINEERING contains a wealth of information that is yours forever—if you keep your copies in one of these leather BINDERS.

SIGN HERE

→

and enclose money order for $1.75. One will be sent you immediately.



Handy Leather Binder Holds Twenty-Six Issues

$1.75

RESOLVE — that this year you won't mislay a single valuable copy of FIRE ENGINEERING!

Name .....

Position .....

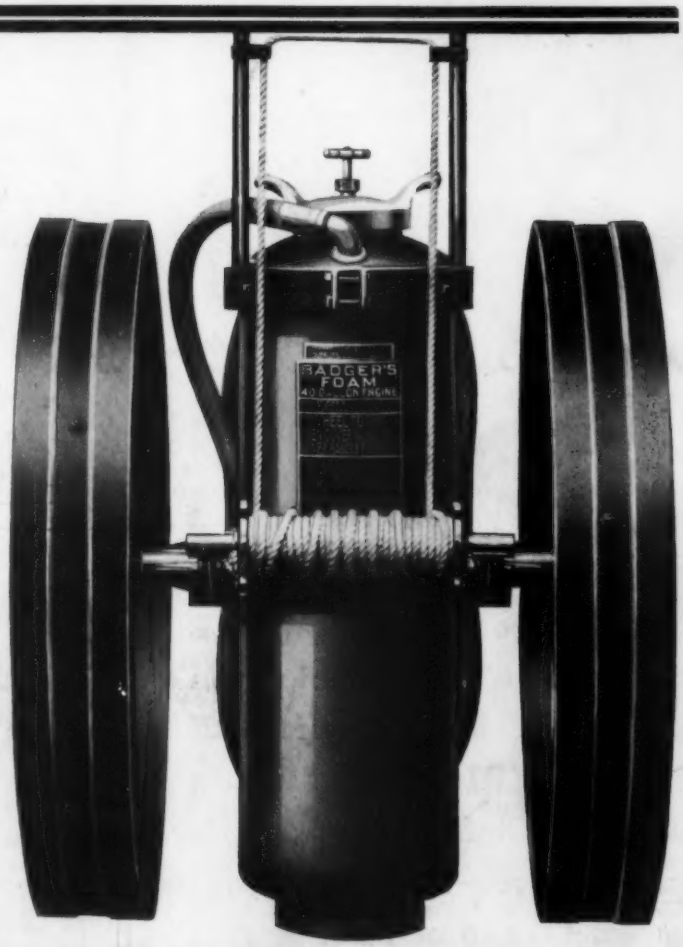
Address .....

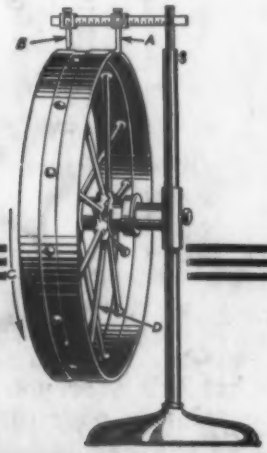
THERE IS NO GREATER SAFETY

IN order to afford maximum safety modern fire extinguishers are provided with many efficiency and convenience features. This is why the Badger and nearly all makes of portable chemical engines are equipped with French & Hecht Wheels. These wheels are designed to meet exactly the requirements of each type of extinguisher.

French & Hecht Wheel construction assures not only maximum strength but also mechanical accuracy far beyond the usual limits in wheel manufacture. This is why nearly 800 manufacturers of all kinds of wheeled equipment use French & Hecht Wheels.

FRENCH & HECHT, Inc., Davenport, Iowa, Springfield, Ohio . . . . Wheel Builders since 1888.





French & Hecht Wheels are tested for . . . ROUNDNESS . . . TRUENESS and BALANCE.

FRENCH & HECHT

STEEL WHEELS